WISCONSIN AIR POLLUTION PERMIT APPLICATION INSTRUCTION BOOKLET

for

Minor Permits
(Non-Part 70 Source)

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P.O. BOX 7921
MADISON, WI 53707

Acknowledgement

This booklet has been adapted from the publication *Wisconsin Air Pollution Permit Application Instruction Booklet for Part 70 Sources*.

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(available as WordPerfect 5.1 files on computer disk)

INTRODUCTION

What is an Operation Permit?

Wisconsin requires all facilities not exempt by rule to get an Air Pollution Control Operation Permit from the Department of Natural Resources Bureau of Air Management. This booklet tells how to apply for a permit if your facility is a "minor" source of air pollution. The Permit, which is enforceable by the State of Wisconsin, outlines all the requirements for a facility to comply with federal and state air pollution rules. The Permit is valid for a maximum of five years, at which time it may be renewed. The application will contain:

1. Identifying information, such as company name and address, and facility contacts.
2. Details on each significant emissions unit, operation and activity, including alternative operating scenarios.
3. Emission calculations.
4. A signed certification of application completeness and accuracy.

Please note that all hard copy portions of the application should be submitted in duplicate.

This booklet is intended for "minor" sources of air pollution

This booklet is for Non-part 70 sources, sometimes informally called "minor" or "state only". Instructions for "major" or "Part-70" sources were included in the more comprehensive publication titled *Wisconsin Air Pollution Permit Application Instruction Booklet (Pub AM-123-93)* All major sources should already have applied for operation permits. If you have not yet applied for an operation permit, and you think your facility may be a major source, you should contact the Department immediately.

When is the application due?

Your application due date depends on which county your facility is in (Appendix H). The earliest applications are due July 1, 1997. The forms require considerable information gathering and calculations. *The department recommends that you begin preparing your application at least 6 months before your due date*. If you fail to submit a complete application by the due date, any continued operation of your facility will be a violation of state regulations.

Status of Your Current Permit

As long as you submit your permit application on time, the conditions and limitations of any current permits or orders you have continue to apply until you receive a new Air Pollution Control Operation Permit.

HOW TO TELL IF YOU NEED A PERMIT

Every facility is required to get an air pollution control operation permit unless it is exempt. To be exempt, a facility must either fall in a *Specific Category of Exempt Sources*, or it must meet the criteria of the *General Category of Exempt Sources*. If your facility qualifies for either of these exemptions, it is exempt. It does not have to qualify for both.

Specific Categories

If your facility consists *solely* of one of the *Specific Categories of Exempt Sources* in Appendix C, it is exempt. Keep documentation of how you determined your facility was exempt, as the DNR may ask to see it later. You may be required to maintain records of materials used, emissions, or production rates to demonstrate that your facility qualifies for the exemption. See the footnote in Appendix C. If your facility qualifies for one of these exemptions, you do not have to submit an application or continue any further in this booklet.

General Category

To determine if your facility is exempt under this category, complete the following steps. Retain all information you use in your determination. You will need this information for your permit application, if one is required, or to demonstrate that you qualify for an exemption.

Step 1. Determine if you are subject to New Source Performance Standards (Sec. NR 440, Wis. Adm. Code) or NESHAP/MACT rules (Sec. NR 446-448, 468, Wis Adm. Code). If either of these apply, you will need to apply for a permit

Step 2. Identify all sources of air pollution at your facility, including *fugitive emissions*.

Step 3. Calculate the maximum theoretical emissions of each air contaminant from each *emissions unit*, operation and activity at your facility. The air contaminants of concern are found in Appendix E. Appendix D lists several resources to help you calculate emissions. Appendix F defines *Maximum theoretical emissions* and gives example calculations.

What about fugitive emissions?

Include *fugitive emissions* in your calculations.

What about several similar emissions units?

Emissions from several similar units that perform identical or similar functions (such as paint booths) should be combined and treated as if they are one emissions unit.

What about insignificant units?

This has caused confusion. The word "insignificant" suggests that you can disregard them altogether, but this may not be true. To know if you need a permit, you must know if air emissions from your entire facility are above certain limits. If your facility is close to the threshold, then contributions from the "insignificant" units could push it over the limit, and in that case it would be your responsibility to recognize the fact and apply for a permit. On the other hand, if it is obvious that you are below the threshold, you don't need to waste time calculating tiny numbers from "insignificant" sources. And, if you need a permit, you do not have to include such calculations in the application.

With this in mind, the following are "insignificant" sources:

1. Maintenance of grounds, equipment and buildings, including lawn care, pest control, grinding, cutting, welding, painting woodworking, general repairs and cleaning. However, DO include use of organic compounds used as clean-up solvents for processes;
2. Maintenance of boilers, turbines, generators, heating and air conditioning systems;
3. Pollution control equipment maintenance;
4. Internal combustion engines used for warehousing and material transport, forklifts and courier vehicles, front end loaders, graders and trucks, carts and maintenance trucks;
5. Fire control equipment;
6. Janitorial activities;
7. Office activities;
8. Convenience water heating;
9. Convenience space heating units with heat input capacity of less than 5 million BTU per hour that burn gas, liquid fuels or wood; for these units provide total heat input capacity of all units and fuels burned.
10. Fuel oil storage tanks with a capacity of 10,000 gallons or less;
11. Stockpiled contaminated soils;
12. Demineralization and oxygen scavenging of water for boilers;
13. Purging of natural gas lines; and
14. Sanitary sewer and plumbing venting.

An *emissions unit*, operation or activity may also be considered insignificant if the *maximum theoretical emissions rates of all air contaminants* are less than the levels in Appendix E.

Step 3. Total the maximum theoretical emissions of each air contaminant for the entire facility.

Step 4. Compare the maximum theoretical emissions from Step 3 to the criteria for a general exemption in Appendix C.

If your facility meets all the criteria for the *general category of exempt sources*, you are not required to submit a permit application or continue through this instruction booklet. Retain documentation of how you determined that your facility was exempt from the permitting requirements, as the DNR may request to see it at a later date.

General Operation Permits

General Operation Permits (GOPs) are streamlined permits for certain specialized operations. They contain the same types of limitations and conditions as other permits, and the same application filing

deadlines, but the application and review process is simplified. A *general operation permit* may be issued to an entire facility, a process line or a specific *emissions unit* for the following operations:

* Perchloroethylene Dry Cleaners
* Ethylene oxide sterilization systems
* Small heating systems
* Stone crushing operations
* Bulk petroleum and gasoline plants
* Chrome electroplating operations

If you wish to apply for a *general operation permit*, please contact the Bureau of Air Management at (608) 266-7718 to request the application forms.

BASIC INFORMATION ABOUT THE APPLICATION FORMS

Some background information is needed before you fill out the forms. Read this section carefully.

Applying for Confidentiality

All information submitted to the Department is part of the public record. The Department can keep confidential portions of your application, other than emissions data, if you demonstrate that the information is entitled to protection as a *trade secret*.

To apply for confidential status you must submit a written request in affidavit form that includes the applicant name and address, the position of the individual filing, the specific type of information for which confidential status is sought, and the save facts and supporting legal authority believed to constitute a basis for obtaining confidential treatment. You must specifically identify all information for which you are seeking confidential status. Submit 2 copies of the complete application, and 2 additional copies with all confidential material deleted. If you are submitting your application in electronic format, file one diskette with all confidential material deleted and one diskette that has it included. The Department will segregate the confidential portion of your application under lock and key pending a decision. For details on filing for confidential status, see s. NR 2.19, Wis. Adm. Code. Applying for confidential status will not delay the permit review process.

Air Permit Application Software

An electronic permit application system is available on DOS, Windows, and MacIntosh platforms. We urge you to use this system to fill out your permit application forms. Using the diskettes should save you time.

The Software

The system diskette is self-installing. When you begin the installation routine, the program will first scan your computer to determine if there is enough disk space available to run the program. Software requirements are as follows:

	DOS	Windows	MacIntosh
Minimum Version	3.3	3.1	7.1
Monitor	VGA	VGA	VGA
RAM	510 KBytes executable	8 MBytes	8 MBytes
Available hard disk space	5 MBytes	6 MBytes	6 MBytes

If you would like to use the electronic application system, to file your application, call the Department at (608) 266-7718, and the software will be sent to you.

Prefilled Information

Sources on Wisconsin's Air Emission Inventory that receive the electronic application forms/package receive electronic forms that are partially filled out. If there is prefilled information, it was taken from the *Air Emission Inventory* report that your facility filled out in 1992, or from a previously submitted operation permit application. Carefully check this information to ensure that it is correct. If it is not, please replace it with the correct information. Be sure to correct this on your next annual update of the emissions inventory, if necessary.

In some cases, *emissions unit* identification numbers may be prefilled. If they are, do not change the unit identifications unless necessary to provide accurate information. If you do change a prefilled identification number, please use form 4530-135 to explain this change. The software allows you to add additional *emissions units* when necessary. Also, you can update the prefilled information or delete it if it does not need to be included in the application (e.g., insignificant units, units no longer in operation, etc.).

Forms

Here is a list of the application forms which apply to minor sources.

Facility Summary Forms (Fill out one of each):
4530-100 Facility Identification
4530-101 Facility Plot Plan
4530-102 Source Site Description (-102, -102A, -102B)
4530-134 Index of Air Pollution Permit Application Forms

Stack Identification Form 4530-103 (Fill out one form for each stack that exhausts significant emissions.)

Emissions Unit Forms (Fill out one for each significant *emissions unit)*:
4530-104 Boiler or Furnace Operations
4530-105 Storage Tanks
4530-106 Incineration
4530-107 Printing Operations
4530-108 Painting and Coating Operations
4530-109 Miscellaneous Processes

Control Equipment Forms (Fill out one for each piece of air pollution control equipment):
4530-110 Miscellaneous Control Equipment
4530-111 Condensers
4530-112 Absorbers
4530-113 Catalytic or Thermal Oxidation
4530-114 Cyclones or Settling Chambers
4530-115 Electrostatic Precipitators
4530-116 Wet Collection Systems
4530-117 Baghouses and Fabric Filters

Pollutant Summary Forms (See instructions on individual forms):
4530-126 Emission Unit Hazardous Air Pollutant Summary
4530-127 Facility Hazardous Air Pollutant Summary
4530-128 Emission Unit Summary
4530-129 Facility Emissions Summary
4530-134 Index of Air Pollutant Permit Application Forms

Additional Information Form (4530-135) (Fill out as many as needed to supply extra information.)

Form Order

The forms are designed to be filled out in a certain order. Start by filling out the overall facility forms, 4530-100, -102 and then -101. Then fill out the stack identification form 4530-103 for your first stack and the forms for *emissions units* and control equipment related to this stack. Then fill out the *emissions units* pollution summary forms related to this stack. Repeat this for each stack at your facility. After completing all the stack identification and related forms, fill out the facility pollutant summary forms and the index.

Examples:

1. Coating operation with Catalytic Incinerator having two separate chambers (S01, S02, P01, C01, C02).

    a. stacks = S01 & S02: 1 form 4530-103 (refer to stack form instructions)
    b. coating line = P01: 1 form 4530-108
    c. catalytic incinerator = C01 & C02: 2 forms 4530-113
    d. emission unit hazardous air pollutant summary for P01: 1 form 4530-126
    e. emission unit summary for P01: 1 form 4530-128

2. Foundry green-sand shake-out and no-bake shake-out lines connected to a baghouse (S10, P11, P12, C10).

    a. stack = S10: 1 form 4530-103
    b. green-sand shake-out and no-bake shake-out lines = P11 & P12: 2 forms 4530-109
    c. baghouse = C10: 1 form 4530-117
    d. emission unit hazardous air pollutant summary for P11 & P12: 2 forms 4530-126
    e. emission unit summary for P11 & P12: 2 forms 4530-128

3. Boiler connected to a cyclone and a baghouse, in series, exhausting from one stack (S01, B01, C01, C02) and a metal parts cleaner/degreaser unit (S02, F01).

    a. stack = S01 and S02: 2 forms 4530-103
    b. boiler = B01: 1 form 4530-104
    c. cyclone = C01: 1 form 4530-114
    d. baghouse = C02: 1 form 4530-117
    e. metal parts cleaner = F01: 1 form 4530-109
    f. emission unit hazardous air pollutant summary for both B01 and F01: at least 2 forms 4530-126
    g. emission unit summary for B01 & F01: 2 forms 4530-128

Alternative Operating Scenarios

While filling out your permit application, consider all the different operating scenarios you might want to utilize during the 5-year life of your permit. On some of the forms it is easy to address alternatives. For example, the printing form 4530-107 asks you to give information for all inks you currently use

in your press and all inks you may want to use in the press for the next five years. Write "alternative" next to the inks that may be used in the future. Other forms don't lend themselves as easily to describing alternative operating scenarios. In this case, fill out a 4530-135 form for additional information to describe the alternative operating scenario.

Application Completeness

Be sure that all the appropriate blanks and forms are filled in. If you are using hard copy forms, you will have to do this check visually. Required fields are shaded on the hard copy forms. If you are using electronic forms, you can generate a completeness report which does this automatically.

The Department has 20 days from the date you submit your application to determine if your submittal is complete. You will be notified if the Department determines that your application is incomplete. You will then have 30 days to submit the missing information. The Department reserves the right to ask for additional information even after the application is initially deemed complete.

Submitting Your Permit Application

Hard Copy portions of the application should be submitted in duplicate. Submit the application to the following address.

Wisconsin Department of Natural Resources
Bureau of Air Management AM/7
Permits Section
P.O. Box 7921
Madison, WI 53707-7921

You are required to submit a complete application by the specified due date as well as any additional information requested by the Department by the date specified. If you fail to do so, you will no longer be authorized to continue operating your facility. Any continued operation will be a violation of state air pollution regulations, subjecting you and your company to possible penalties, forfeitures, fines, and imprisonment.

Permit applications for *minor sources* are due according to the dates outlined in Appendix H. The dates are arranged by county. If your facility is located in more than one county, use the later date.

The Department can grant an extension of the permit application due date up to 60 days. To be eligible for an extension you must:

1. Apply for the extension in writing at least 30 days but not more than 90 days before the application is due. (Note: the Department does have the ability to waive the 30-day requirement if an emergency occurs that makes it impossible to meet the deadline.)

2. Demonstrate that the reason the applicable due date cannot be met is beyond your control.

FORM-BY-FORM INSTRUCTIONS

This section is designed to supplement the instructions found on the back of each application form or on the help screens of the electronic forms. It offers expanded explanations of some of the items and examples.

If an item doesn't fit your particular situation, first check the instructions for clarification. If the item still doesn't seem to apply to you, write in "Not Applicable," or, if you can't answer it in the space provided, you can fill out form 4530-135, the supplemental information form to explain how your particular situation makes you a special case. Attach as many supplemental information forms as necessary. If you are using paper forms, you can make extra copies of any of the forms as you need them.

There are many places in these forms where documentation is required or where we want you to show the calculations you used to make certain claims. Be sure all the documentation is attached to the hard copy forms when you send them in, or that they are enclosed with the diskette if you file electronically.

Some items on the paper forms are *shaded* and on the computer screens are *highlighted*. These items are mandatory and must be filled in with some type of response for your application to be deemed complete. Items that are not shaded on the paper forms and not highlighted on the computer screens must be filled out only if they are applicable.

Form 4530-100 -- Facility Identification

This form serves as the cover sheet to your completed permit application and provides identifying information for your facility. Every application needs to include this form.

Item 6. Standard Industrial Classification (SIC). The SIC Code for your industry can be found in the Standard Industrial Classification Manual put out by the Office of Management and Budget. The code for your facility can also be found on the first page of your facility's annual *Air Emissions Inventory* Report.

Item 7. Facility Identification (FID) Numbers. Each form asks for your FID. This 9-digit number can be found at the top of each page of your facility's annual *Air Emissions Inventory* Report. If you've never before had contact with the Department, you may not have ever been issued a FID number. In this case, you should enter "88888888" in the blank. This is a signal to the Department to assign your facility a FID number.

Item 9. Type of Permit. The same application forms will be used to apply for both construction permits and operation permits. Indicate if you are applying for a *non-part 70 source* permit. If you are a new source or are modifying your facility, you must check the boxes for both a construction permit and an operation permit. (The booklet *Expanding Industry in Wisconsin* explains the requirements for new and modified sources. If you would like a copy call the Department at (608) 266-7718 to request one. If you want an expedited construction permit, read the section in that booklet

titled "Air Pollution Control Construction Permit Processing Time." This option applies only to new or modified sources applying for a construction permit. If you are applying for an operation permit even though you are not required to, check "elective operation permit."

Item 10. Attainment/Nonattainment Status. To find out if your facility is located in a "nonattainment" area, turn to Appendix G. Areas are designated "nonattainment" by pollutant. For example, your county may be nonattainment for ozone but attainment for all of the other criteria pollutants. If your area is attainment for all pollutants, write in "none" or "not applicable."

Form 4530-101 -- Facility Plot Plan

This form will be easier to fill out after you have filled out form 4530-102. If you haven't completed 102 yet, do so now.

Every facility must fill out this form and attach a plot plan or blueprint of the plant layout. When preparing your plot plan, use form 4530-102 to ensure that you have included all emissions points. A plot plan consists of a scale drawing, preferably a blueprint, of a birds-eye view of your entire facility including all buildings and property lines. Indicate North on your plot plan and include the scale of the drawing such as 1 inch : 10 feet or 1 cm = 1 m. Label each building with its maximum height, and all length and width dimensions.

Indicate the location of all the stacks. Label these stacks with the same identification numbers that you used on form 4530-102. If there are several stacks connected to one process, indicate the location of each stack, and label them all with the same identification number. The Plot Plan is the only place where duplicates of a stack identification number are allowed.

The information on this form is important for air pollutant dispersion modeling. This modeling is used to determine whether your facility's emissions will meet the National Ambient Air Quality Standards (NAAQS). Be as accurate as possible when completing this form.

Form 4530-102 -- Source and Site Description

Fill out this form before filling out form 4530-101.

Every facility must fill out this form. This form has three parts: 102, 102a, and 102b. You should refer to this form when filling out the rest of the permit application to make sure that your numbering scheme is consistent and that nothing has been left out. This section will be used extensively by the permit reviewer to get a picture of how your facility works and to understand which forms go with which pieces of equipment.

You are required to identify *all emissions units*, operations, and activities in your permit application. Insignificant *emissions units*, operations and activities need only be listed on form 4530-102b. You do not need to provide any other information or fill out any other forms for insignificant units.

4530-102 Item 1. Source Description. Provide a general, but comprehensive description of the air pollution sources at the plant. This description should list the individual *emissions units* (e.g., one

wood-fired boiler, one wood furniture paint booth, and two sawing operations) and any stacks or roof vents associated with them.

Example: Acme Manufacturing produces hardwood veneer paneling. The mill runs a veneer cutting operation, a veneer gluing operation, a panel trim operation, as well as finish sanding and varnishing lines. Three wood-fired boilers provide the mill with steam for process and general heating needs. Sawdust and sanderdust from the production lines are collected by a cyclone and conveyed to the two smaller boilers. The cyclone collector has its own stack, and the gluing and varnishing lines each have their own stacks.

Acme operates two identical 500 horsepower boilers which fire a mixture of sawdust and sanderdust. The emissions from these two boilers are not controlled and go to a common stack. The third boiler fires hog fuel from the sawmill and debarking operation. This boiler has its own stack, and its emissions are controlled by a multiple-cyclone collector.

4530-102 Item 2. Site Description. Give a general description of the area surrounding the plant. This description should include the location of the plant relative to major highways and other landmarks. Indicate whether the plant is near a residential area, in an industrial park, in a rural area, etc. If the plant is located in one or more "nonattainment" areas, these should be identified (see Appendix G for a list of nonattainment areas). In addition, topographical features of the surrounding countryside, such as bluffs, streams, and river valleys, should be described.

4530-102a Significant emissions units. Describe all significant *emissions units*. These will all be included in the rest of your permit application. See page 4 for an explanation of significant *emissions units*. Include in your description equipment specifications for each *emissions unit* such as manufacturer and model number, maximum operating capacity of the equipment, fuels that may be used, and coatings or solvents that may be used. Assign *emissions unit* and stack identification numbers to the equipment at this time.

Assigning identification numbers. In the case of electronic applications, *emissions unit* identification numbers may be prefilled on the forms you received. If they are, do not change the unit identifications unless necessary to provide accurate information. If you do change a prefilled identification number, please use form 4530-135 to explain this change. The format for identifying all stacks, processes, boilers, control devices, etc., is a single letter followed by two numbers. The letter identifies what the unit is: S=stack, P=process, B=boiler or furnace, C=control device, I=incinerator, F=*fugitive*, or T=tank. The two numbers should range from 01 to 99 (zero needs to be in front of single digit values, 1-9). Alphanumeric characters such as "A5", "5A", or "ZZ" are also allowed. The numbering does not have to start at 01.

Emissions units that you may think of as indoor "fugitive" emissions (e.g., a degreaser or paint touch-up area) should be assigned a stack or vent that exhausts outside the building. Storage tanks should not be assigned a stack.

To avoid confusion, do not duplicate numbers for emission units at the same facility (i.e. there should never be two P01s, two S01s, two T01s, etc.)! If you are using electronic forms, the computer will notify you when you are using a duplicate identification number and ask if you wish to delete the original information or supply a different number.

Examples of identification format:

1) Two *emissions units* exhausting through one control device and out one stack could be identified as S01, C01, P01, P02.

2) If the same facility also had these tanks, and another single *emissions unit* exhausting through two control devices and out one stack, the identification could follow as S02, P03, C02, C03; T10, T20, T99.

3) A source of *fugitive emissions*, such as a sand storage pile, could be identified as F99.

Keep the first digit of the identification number the same for associated *emissions unit(s)* and stack(s). For example, P10 correlates to S10. The second digit of the identification number can be changed to identify the individual *emission units* exhausting to one stack. For example:

S10: I10, P11, P12, C11 (for I10), C12 (for P11 and P12)
S20: P21, P22, C21 (for P21 and P22)

Example: Unit description:

A. Boiler B23, S13, C23 - 32 MMBTU/hr Hog Fuel Boiler

Manufacturer & Model:	XYZ Model Q-45
Boiler Type:	Air-swept stoker
Max. Continuous Heat Input Rate:	32.0 MMBTU/hr
Fuel Moisture:	35 percent
Installation Date:	April 1990
Air Pollution Control:	Multiple Cyclone

B. Boilers B21 and B22, S12 - 500 HP Fines Boilers

Manufacturer & Model:	Kewaunee AQ-45
Boiler Type:	Horiz. Return Tube
Max. Continuous Heat Input Rate:	23.9 MMBTU/hr each
Fuel Moisture:	15 percent
Installation Date:	1921 (?)
Air Pollution Control:	none

C. Process P30, S20 - Veneer Cutting Operation

Process Throughput:	1.1 tons/hr
Air Pollution Cntrl.:	none

D. Process P31, S21 - Veneer Gluing Operation

Process Throughput:	1.1 tons/hr
Glue Type:	Phenolic Resin
Air Pollution Cntrl.:	none

E. Process P32, S22 - Panel Trim Operation

Process Throughput:	1.1 tons/hr
Air Pollution Cntrl.:	none

F. Process P33, S23 - Finish Sanding Operation

Process Throughput:	1.1 tons/hr
Air Pollution Cntrl.:	none

G. Process P34, S24 - Topcoating Process

Process Throughput:	7.2 gal/hr
Coatings Used:	TopKlr 107 (water-base)
	Mighty Kleer (oil-base)
Air Pollution Cntrl.:	none

4530-102b Insignificant emissions units. You must list all insignificant *emissions units*, operations and activities at your facility on this form. Do not fill out any other form in your permit application for insignificant *emissions units*. Insignificant *emissions units* are described on page 4 of this booklet. Form 4530-102b contains a checklist of several insignificant *emissions units*, operations and activities. Note that these are quite general and will cover a number of specific activities. Try to be as general as possible when determining if an *emissions unit*, operation or activity is insignificant. The Department encourages you not to spend a lot of time on insignificant units. Identify them and move on to the rest of the application.

Form 4530-103 -- Stack Identification

Information you provide on these forms is used by the Department primarily for computer dispersion modeling that tells us whether your facility will be likely to meet ambient air quality standards. Therefore, it is important that you be as accurate as possible when completing this form. The permit that the Department issues may contain requirements that your stacks meet the specifications described in your application.

The Department will combine the plot plan data with the information you provide on each form 4530-103 to run a computer program. It is imperative that we understand which stack on your plot plan goes with which stack identification form.

You must fill out one form for each stack, roof vent, wall vent, etc., that vents the *emissions unit(s)* in your permit application. These stacks may vent *emissions units* such as your boilers, incinerators, paint booths, printing presses, solvent cleanup stations, chemical reactors, grinding stations, cutting or gluing areas, and any other significant *emissions units* in your plant. Storage tanks will not have a stack form associated with them.

If there are a number of stacks connected to one *emissions unit*, report them all under one representative stack, and fill out only one stack form. Attach form 4530-135 to further explain this situation. Please include a supplemental list which details the individual stack parameters. Tell us how many stacks are being combined under this "dummy" stack. Use a simple average of each of the stack parameters (height, diameter, flow rate, and temperature) as the representative stack's parameters. Note: The pollutant emission rate should always be the sum total from all stacks involved and not the average -- this information will be used on form 4530-128.

Item 3 Listing Stack Numbers. List the identification number of the stack. This should be the number you assigned to the stack in your plot plan on form 4530-101 and your source description on form 4530-102.

Item 4 Listing Process Numbers. Figure out which application forms you will need to fill out for each *emissions unit* that vents out this stack (4530-104 through -109). On the blanks provided, list the

emissions unit identification number(s) next to the appropriate form number. For example, enter "B01" in the blank next to "4530-104" for a boiler. The *emissions units* forms are:

4530-104	Boiler or furnace operations
4530-106	Incineration
4530-107	Printing operations
4530-108	Painting and coating operations
4530-109	Miscellaneous processes

Once the identification numbers are entered, the computer then generates the form for each *emissions unit*.

Item 6. Fugitive Emissions. If there is no actual stack or vent associated with an *emission unit*, check the box "this stack serves to identify *fugitive emissions*." You do not need to fill out the rest of this form. An example of an *emissions unit* which has f*ugitive emissions* is a material storage pile located outside. Please note that if emissions from a process, *emissions unit*, etc. escape from the building in some way, you should assign a stack to that process, *emissions unit*, etc. (e.g., a degreaser or paint touch-up area). That stack may have to be a "dummy" stack with parameters that approximate the release point parameters.

Form 4530-104 -- Boiler or Furnace Operation

Complete one form for each boiler or furnace in your plant. Do not fill out this form for insignificant *emissions units*. See page 4. Be sure the unit identifications and any prefilled information are correct.

Item 5. Listing Control Equipment. Check whether the *emissions unit* is controlled or not. If it is controlled, figure out which application forms you will need to fill out for this control equipment (4530-110 through -117). List the control device identification number(s) for this *emissions unit* on the blank next to the appropriate form number. For example, enter "C01" in the blank next to "4530-117" for a baghouse. The eight control equipment forms are:

4530-110	Miscellaneous Control Equipment
4530-111	Condensers
4530-112	Absorbers
4530-113	Catalytic or Thermal Oxidation
4530-114	Cyclones or Settling Chambers
4530-115	Electrostatic Precipitators
4530-116	Wet Collection Systems
4530-117	Baghouses and Fabric Filters

Item 11. Fuels. Complete the table for all fuels that you use or are capable of using with this boiler or furnace. Remember to address any Alternate Operating Scenarios, and label any alternative fuels as such. Include only fuels that you are currently capable of using and that are not prohibited by any permit, plan approval or order.

The fuels and fuel data provided in this table will be used to establish any permit conditions necessary to ensure compliance with emission limits and ambient air quality standards. They will be the only fuels your permit will allow you to use, so make sure the list is complete.

Fuel data such as the higher heating value, sulfur content, and ash content can often be obtained from your fuel supplier. Fuels can also be tested to provide this information. Be sure to include the units such as BTU/lb of coal or BTU per gallon of oil. Sulfur and ash content should be given as weight percents. If the heating value is provided as a range, use the lower number to show a worst case.

Example: Ye Olde Manufacturing operates a multiple fuels boiler built by Combustion Engineering in 1955. This boiler is equipped to burn natural gas, residual fuel oil, distillate fuel oil, and a variety of solid fuels. Ye Olde wants to be permitted to burn any of these fuels at any time to maintain a high degree of operational flexibility.

To complete form 4530-104, Ye Olde must describe the fuel characteristics for all of the fuels it is capable of burning. The table below lists the characteristics of just two of the fuels Ye Olde Manufacturing wants included in its permit. They obtained the information from their fuel supplier.

Fuel Characteristics	Primary Fuel	Backup Fuel #1
Fuel Name	Bitum. Coal	Nat. Gas
Higher Heating Value	10,000 BTU/lb	1000 BTU/ft^3
Maximum Sulfur Content	2.8% (w/w)	0.00% (w/w)
Maximum Ash Content	9.5% (w/w)	0.00% (w/w)
Excess Combustion Air	15%	10%
Moisture Content	2.5%	0.0%
Maximum Hourly Consumption	3.3 tons	0.07 x 10^6 ft^3
Actual Yearly Consumption	15,000 tons	50 x 10^6 ft^3

In the table above, the heating value, sulfur and ash contents, and hourly fuel consumption values represent "worst case" assumptions from the air pollution perspective. Please note that the units for heating value vary with the fuel type (e.g., BTU per pound for solid fuel, BTU per cubic foot for gaseous fuel). Similarly, the units for fuel consumption are fuel-dependent.

Form 4530-105 -- Storage Tanks

Complete one form for each storage tank at your facility. Do not fill out this form for insignificant *emissions units*. See page 4. This is a two-page form. You must complete both pages. Be sure the unit identifications and any prefilled information are correct.

Item 4 Listing Control Equipment. Figure out which application forms you will need to fill out for this control equipment (4530-110 through -117). List the control device identification number(s) for this *emissions unit* on the blank next to the appropriate form number. For example, enter "C01" in the blank next to "4530-117" for a baghouse. The eight control equipment forms are:

4530-110 Miscellaneous Control Equipment
4530-111 Condensers
4530-112 Absorbers
4530-113 Catalytic or Thermal Oxidation
4530-114 Cyclones or Settling Chambers

4530-115 Electrostatic Precipitators
4530-116 Wet Collection Systems
4530-117 Baghouses and Fabric Filters

Item 12. Tank Types. Indicate the type of tank according to these definitions:

Open Top Tanks do not have roofs. The stored liquid is exposed to the open air.

Pressurized Tanks are equipped with a pressure/vacuum vent that is set to prevent emissions caused by boiling and breathing losses due to daily temperature or barometric pressure changes. A tank is considered pressurized if the pressure vent is set above 2.5 pounds per square inch gage (psig).

Fixed Roof Storage Tanks may be vertical or horizontal. Typically they consist of a cylindrical steel shell with a permanently affixed roof, which may vary in design from cone- or dome-shaped to flat. Fixed roof tanks are either freely vented or equipped with a pressure/vacuum vent.

External Floating Roof Storage Tank consists of an open top cylindrical steel shell equipped with a roof that floats on the surface of the stored liquid.

A fixed roof tank with an *Internal Floating Roof* looks similar to a fixed roof tank from the outside. Inside the tank is a deck which floats on the surface of the liquid and allows for expansion and contraction of the liquid while minimizing evaporation losses.

Variable Vapor Space Storage Tanks are equipped with expandable vapor reservoirs to accommodate vapor volume fluctuations due to daily temperature and barometric pressure changes.

Items 13-17. Note: these questions apply to particular types of storage tanks. Fill out only the questions that apply to the type of tank that this form is for. Use *AP-42* Chapter 12, STORAGE OF ORGANIC LIQUIDS (make sure it includes Supplement D) when calculating emissions from your storage tanks.

Item 18. Stored Materials. You need to complete the table for all materials that are stored in this tank. Remember to address any Alternate Operating Scenarios, and label any alternative liquids as such. Material molecular weight, material vapor pressure, and material liquid density, if not available from your supplier, can be found in chemical handbooks or *AP-42* (see Appendix D).

Example: Chem-All's storage tank T21 presently is used to store either ethanol or isobutanol. In the future the tank might be used exclusively for the storage of allyl alcohol. To fill out the table, they turn to their copy of *AP-42*. Chapter 12 of this document contains a table with liquid densities, molecular weights and vapor pressures at various temperatures for a number of organic liquids. By looking at past records, the facility can estimate an annual throughput, storage pressure, and an average daily amount stored for each of the liquids. Here is how Chem-All fills out the table for storage tank T21:

Material Stored	Annual Thruput (gal/yr)	Daily Average Amount Stored (gallons)	Material Molecular Weight (lb/lb-mol)	Material Vapor Pressure (psia)	Storage Pressure (psia)	Average Storage Temp (° F)	Material Liquid Density (lb/gal)

Ethanol	210,000	21,000	46.07	0.406	14.7 ± 0.5	50	6.610
Isobutanol	165,000	10,000	74.12	0.097	14.7 ± 0.5	50	6.712
ALTERNATIVE SCENARIO: Allyl alcohol	195,000	18,000	58.08	0.193	14.7 ± 0.5	50	7.125

Item 21. Operations Served by this Tank. This information is necessary to identify regulations that apply to the storage tank, so be sure to fill out completely.

Form 4530-106 -- Incineration

This form is used for incinerators that burn waste. *Do not use this form for control equipment.* If you have an incinerator that is used to control organic compound emissions from a process you should use form 4530-113.

Complete one form for each incinerator used to burn waste materials. Be sure the unit identifications and any prefilled information are correct. Most of the information for this form can be obtained from your incinerator manufacturer.

Item 5. Listing Control Equipment. Check whether the *emissions unit* is controlled or not. If it is controlled, figure out which application forms you will need to fill out for this control equipment (4530-110 through -117). List the control device identification number(s) for this *emissions unit* on the blank next to the appropriate form number. For example, enter "C01" in the blank next to "4530-117" for a baghouse. The eight control equipment forms are:

4530-110 Miscellaneous Control Equipment
4530-111 Condensers
4530-112 Absorbers
4530-113 Catalytic or Thermal Oxidation
4530-114 Cyclones or Settling Chambers
4530-115 Electrostatic Precipitators
4530-116 Wet Collection Systems
4530-117 Baghouses and Fabric Filters

Item 10. Materials to be Burned. List all materials that will be burned in your incinerator. Remember to address any Alternate Operating Scenarios, and label any alternative materials as such. Refer to previous facility records, your incinerator manufacturer, and trade associations.

Example: Central City Memorial Hospital is submitting a permit application for their hospital incineration unit. The incinerator has a rated capacity of 200 pounds per hour, so it will not use add-on emission control equipment. The hospital finds the weight percent of their waste streams by having their incinerator operator record the weight of red bag waste and regular waste that went through the incinerator for 3 days. They then estimate the weight percent of each waste type from those figures. To find the heating value of each type of waste the hospital called their incinerator manufacturer who gave them estimates based on a detailed description of their waste stream. The facility fills out the table in Item 10 as follows:

Material Hospital	Origin	Weight Percent	Heating Value
Infectious (red bag) waste and Pathological waste	Central City Hospital	95%	10,000 Btu/lb
Hospital Waste	Central City Hospital	5%	4,500 Btu/lb

Form 4530-107 -- Printing Operations

You must fill out one of these forms for each printing operation at your facility. Do not fill out this form for insignificant *emissions units*. See page 4. Be sure the unit identifications and any prefilled information are correct.

Item 5. Listing Control Equipment. Check whether the *emissions unit* is controlled. If it is controlled, figure out which application forms you will need to fill out for this control equipment (4530-110 through -117). List the control device identification number(s) for this *emissions unit* on the blank next to the appropriate form number. For example, enter "C01" in the blank next to "4530-117" for a baghouse. The eight control equipment forms are:

4530-110	Miscellaneous Control Equipment
4530-111	Condensers
4530-112	Absorbers
4530-113	Catalytic or Thermal Oxidation
4530-114	Cyclones or Settling Chambers
4530-115	Electrostatic Precipitators
4530-116	Wet Collection Systems
4530-117	Baghouses and Fabric Filters

Item 10. Description of inks and solvents. List all inks, fountain solutions, blanket washes (manual or automatic), clean-up and other solvents used in this operation. Characteristics of these inks may be obtained from test data, the supplier, or on Material Safety Data Sheets (MSDS). If the MSDS contains ranges, you should list the higher value. You must attach documentation of the ink and solvent characteristics. Remember to address any Alternate Operating Scenarios, and label any alternative inks as such. Under clean up solvents, include blanket wash or any other clean up solvent used on the same process line. Attach 4530-135 for additional information, where necessary.

For item 10e, note that some MSDS's will report the percent volatiles in the ink rather than the percent *VOC*. Also, if you have Method 24 test data you will receive the percent volatiles in the ink. This number includes water and anything else that will evaporate from an ink sample. If your information gives the percent volatiles, you must subtract the percent water and exempt solvents out before entering the number in item 10e. This is so the equations below to calculate VOC content of the ink will be correct. If you are unsure whether this percentage includes water, call the provider of the MSDS or test data for clarification.

Item 10g asks for either the density of the ink or the density of the *VOC* in the ink. Specify on the form which number you have provided. Note that if you give volume percents for water, solids, and VOC content, you *must* give density of the VOC in the ink. If you give weight percents, the you *must* provide the density of the ink.

Only screen printing sources must fill out item 10h. There are several ways to calculate VOC content. Depending on what information you have on hand, you may use one of the following equations to calculate the pounds VOC per gallon less water. Please supply sample calculations on form 4530-135.

If you have ink composition data such as weight percents or volume percents of solids, VOC, and water from an MSDS or other source, the following equations can be used:

Ink contains no water or exempt solvents, using weight percents and ink density

item 10h = (10e/100) x item 10g.

Ink does contain water and/or exempt solvents, using volume percents and the density of the VOC

item 10h = [item 10e x item 10g]/[item 10d + item 10e]

If you have test data, such as Method 24 results, you can use the following equation. Remember to make sure that the weight percent of VOC in item 10e does not contain water or exempt solvents. Ink does contain water and/or exempt solvents, using weight percents and ink density,

item 10h = [item 10e x item 10g]/[100% - (item 10f x (item 10g/8.34))]

Example: ABC Printing has a heat-set web-offset line at their printing facility. They operate 24 hr/day, 6 days/wk, and 300 days/yr. According to their press manufacturer, the maximum material throughput is:

Paper:	7200 lb/hr
Ink:	250 lb/hr
Fountain Solution:	400 lb/hr
Blanket wash:	9 lb/hr
TOTAL:	7859 lb/hr

ABC has MSDS's on file for all the inks they use. The MSDS's provide the weight percent of solids, VOC's, and water in each ink as well as the density of the ink. For item 10h they use the following equation:

[48 x 6.66]/[100% - (6.0 x (6.66/8.34))] = 3.36 pounds VOC/gal less H_2O

ABC fills out item 10 this way:

Name of ink a.	Maximum usage b.		Normal usage c.	Solids % d.		VOC % e.		Water % f.		Coating or VOC Density g.	Pounds VOC/gal less H_2O h.
	gal/hr	gal/yr	gal/yr	W	V	W	V	W	V	lbs/gal	
Heatset ink	30	160,000	100,000	46		48		6		6.66	3.36
Total inks	30	160,000	100,000								
Clean up	1.3	11,500	9600	0		100		0		6.74	----

solvents (Blanket wash)											

Note that ABC has circled the word coating to in item 10g to indicate that they are providing numbers for coating density. If they had used the electronic version of the application forms they would have used form 4530-135, the supplemental information form, to show calculations and clarify which density they used in item 10g.

Form 4530-108 -- Painting and Coating Operations

You must fill out one of these forms for each painting or coating operation at your facility. Do not fill out this form for insignificant *emissions units*. See page 4. Be sure the unit identifications and any prefilled information are correct.

Item 5. Listing Control Equipment. Check whether the *emissions unit* is controlled. If it is controlled, figure out which application forms you will need to fill out for this control equipment (4530-110 through -117). List the control device identification number(s) for this *emissions unit* on the blank next to the appropriate form number. For example, enter "C01" in the blank next to "4530-117" for a baghouse. The eight control equipment forms are:

4530-110 Miscellaneous Control Equipment
4530-111 Condensers
4530-112 Absorbers
4530-113 Catalytic or Thermal Oxidation
4530-114 Cyclones or Settling Chambers
4530-115 Electrostatic Precipitators
4530-116 Wet Collection Systems
4530-117 Baghouses and Fabric Filters

Item 6. Transfer Efficiency. Transfer efficiency is the percentage of coating solids that adheres to the surface of the material being coated during the application process. Transfer efficiency is, generally, a function of the coating technique. Use manufacturer's literature, accepted industry standards, or test data to estimate your transfer efficiency. Supply manufacturer's literature if appropriate.

Item 10. Description of coatings. List all paints, coatings, and clean-up and other solvents used in this operation. You can find out characteristics of these from test data, your supplier, or Material Safety Data Sheets (MSDS). If the MSDS contains ranges, you should list the higher values. You must attach documentation of the characteristics of each coating. Remember to address any Alternate Operating Scenarios, and label any alternative coatings as such. Attach 4530-135 for additional information.

For item 10g, note that some MSDS's will report the percent volatiles in the coating rather than percent *VOC*. Also, if you have Method 24 test data, you will receive the percent volatiles in the coating. This number includes water and anything else that will evaporate from a coating sample. If your information gives the percent volatiles, you must subtract the percent water and exempt solvents out before entering the number in item 10g. This is so the equations below to calculate VOC content of the coating will be correct. If you are unsure whether this percentage includes water, call the provider of the test data or the MSDS for clarification.

Item 10i asks for either the density of the coating or the density of the *VOC* in the coating. Specify on the form which number you have provided. Note that if you give volume percents for water, solids, and VOC content, you must give density of the VOC in the coating. If you give weight percents, the you must provide the density of the coating itself at item 10i.

There are several ways to calculate the *VOC* content required in item 10j. Depending on the information you have on hand, use one of the following equations to calculate the pounds VOC per gallon less water. Please supply sample calculations on form 4530-135.

If you have coating composition data such as weight or volume percents of solids, *VOC*, and water from an MSDS or other source, the following equations can be used:

Coating contains no water or exempt solvents, using weight percents and coating density,

item 10j = (10g/100) x item 10i.

Coating does contain water and/or exempt solvents, using volume percents and the density of the VOC,

item 10j = [item 10g x item 10i]/[item 10f + item 10g]

If you have test data, such as Method 24 results, you can use the following equation. Remember to make sure that the weight percent of VOC in item 10g does not contain water or exempt solvents.

Coating does contain water and/or exempt solvents, using weight percents and coating density,

item 10j = [item 10g x item 10i]/[100% - (item 10h x (item 10i/8.34))]

Example: JB Coating, Inc., manufactures and coats wood jewelry boxes with a clear lacquer and then stamps the names of local tourist traps on the boxes. Petroleum naphtha is used as a cleaner for the stamping portion of the process line. All lacquer is oven-cured. The VOC emissions are controlled by 87% overall. They operate 16 hours/day, 5 days/week, and 200 days/year.

JB gets the weight percents of solids, VOC's, and water, and the coating density from the MSDS sheets on hand for all their coatings. Note that they circle the word "coating" in item 10i to indicate which density they have provided. If they had been using the electronic forms they would have generated a form 4530-135 to describe which density they were providing and to show sample calculations, etc. For item 10j they use the following equation:

[65.8% x 8.5]/[100% - (34.2% x (8.5/8.34))] = 8.59 pounds VOC/gal less H_2O

JB fills out item 10 this way:

Identify coatings	ct cg	T	Maximum usage		Normal usage	Solids %		VOC %		Water %		Coating or VOC Density	Pounds VOC/gal less H_2O
a.	b.	c.	d.		e.	f.		g.		h.		i.	j.
			gal/hr	gal/yr	gal/yr	W	V	W	V	W	V	lbs/gal	
Lacquer	3	250	5	43,800	12,000	0		65.8		34.2		8.5	8.59

Total coatings			5	43,800	12,000								
Clean-up solvents (Petroleum naphtha)			1.0	8760	2200	0		100		0		6.7	6.7

Form 4530-109 -- Miscellaneous Processes

This form should be used if your process will not fit on the other *emissions unit* identification forms. Complete one form for each miscellaneous process at your facility. Do not fill out this form for insignificant *emissions units*. See page 4. Be sure the unit identifications and any prefilled information are correct.

Item 5. Listing Control Equipment. Check whether the *emissions unit* is controlled or not. If it is controlled, figure out which application forms you will need to fill out for this control equipment (4530-110 through -117). List the appropriate control device identification number(s) for this *emissions unit* on the blank next to the appropriate form number. For example, enter "C01" in the blank next to "4530-117" for a baghouse. The eight control equipment forms are:

4530-110 Miscellaneous Control Equipment
4530-111 Condensers
4530-112 Absorbers
4530-113 Catalytic or Thermal Oxidation
4530-114 Cyclones or Settling Chambers
4530-115 Electrostatic Precipitators
4530-116 Wet Collection Systems
4530-117 Baghouses and Fabric Filters

Item 9. Process description. Describe the process. Include the types of operations involved, the end product of the process, and how the product is used. Attach a flow diagram of the process, identifying major pieces of equipment, pickup points for dusts, fumes and vapors, control and collection devices, exhaust stacks and vents, where raw materials will enter the process, and where finished products will exit. Attach diagram and any extra information on form 4530-135.

Item 10. Raw materials table. List all of the raw materials that go into the process, and include the average and maximum amounts of those materials. Remember to address any Alternate Operating Scenarios, and label any alternative materials as such. Indicate any solvents, additives, cleaners, etc. that are used or may be used with this process. Attach Material Safety Data Sheets (MSDS) or other documentation for each substance, if appropriate.

Example: Seesaws, Inc. has a fiberglass spraying operation where they make seats for teeter-totters. They operate 16 hours/day, 5 days/week, and 200 days/yr. Seesaw attaches Material Safety Data Sheets to show the composition of both the fiberglass resin and gelcoat. This is Seesaws' table:

Material	Storage/material handling process	Average usage	Units	Maximum usage	Units
Sprayup vapor	stored in 55 gallon	27,400	lb/yr	75,000	lb/yr

suppressing resin	drums, spray hose attached to opening in top of drum for use				
Sprayup vapor suppressing gel coat	same	2740	lb/yr	7500	lb/yr
Clean-up solvents	acetone, stored in 30 gallon drums, spray hose in top	5,000	lb/yr	10,000	lb/yr

Item 11. Finished products table. List all the finished products. The finished products are important when figuring out what regulations apply to your facility. Remember to address any Alternate Operating Scenarios, and label any alternative finished products as such.

Example: Seesaws, Inc. makes 270 teeter-totter seats per day, each weighing 5 pounds. This is how Seesaws fills out item 11:

Material	Average amount produced	Units	Maximum amount produced	Units
seats for teeter-totters	5400	seats	14,800	seats

Item 12. Process fuel table. List all of the fuels that the process uses or is capable of using. Remember to address any Alternate Operating Scenarios, and label any alternative fuels as such.

Example: Seesaws, Inc. doesn't have any process fuels, so they leave item 12 blank.

Forms 4530-110 through -117 -- Control Equipment

There are eight different control equipment forms. Fill out one form for each piece of control equipment associated with each *emissions unit*, and attach a diagram. In some cases, it will be difficult to use a specific form for your particular control system. For instance if a facility has a painting operation that is controlled by absorbers, condensers, and a catalytic incinerator, it would be difficult for the facility to convey a clear picture of how their control system works using the separate control equipment forms. In this case the facility would use the miscellaneous control equipment form to describe their system and will attach diagrams. Attach form 4530-135 for any diagrams or additional information. Be sure the unit identifications and any prefilled information are correct. The eight control equipment forms are:

4530-110 Miscellaneous Control Equipment
4530-111 Condensers
4530-112 Absorbers
4530-113 Catalytic or Thermal Oxidation
4530-114 Cyclones or Settling Chambers
4530-115 Electrostatic Precipitators
4530-116 Wet Collection Systems
4530-117 Baghouses or Fabric Filters

Example: Chem-All, a batch chemical manufacturing plant, uses a cryogenic condensation system to control emissions of *volatile organic compounds* and *hazardous air contaminants* from its tank farm. Chem-All must fill out one form 4530-111 for its condenser. They attach a description of the condenser unit explaining how it works, what it looks like, where it is located, how it is hooked up to the tanks, etc. They also attach a diagram of the device to make the explanation clearer.

Filling Out a Control Equipment Form

Control equipment forms are divided into sections A and B (except the miscellaneous form 4530-110). Fill out section A completely, attaching all required materials. Be sure the unit identifications and any prefilled information are correct.

If in section A you are able to provide a control efficiency for the equipment and you are able to provide a manufacturer's guarantee or stack test results that documents the control efficiency, you do not need to fill out section B. When filling out section B, most of the operating parameters, such as air-to-cloth ratio in a baghouse, can be obtained from the equipment manufacturer. Other parameters will need to have a device installed so that they can be measured. For instance, a flow meter may need to be installed to measure the liquid flow rate through a wet collector.

Item 9. Pollutant table. It is very important to fill out this table accurately because some of the emissions calculations for your facility will be based on the control and capture efficiencies you list. Be sure to attach all your calculations. Your permit may require you to test this piece of equipment and meet a specific control efficiency to show compliance with emission limits.

• **Pollutant**. List all the pollutants this control device is targeting. These would include any *criteria pollutants* (particulate matter, sulfur dioxide, nitrogen oxides, volatile organic compounds, carbon monoxide, and lead) and any regulated *hazardous air contaminants* (see Appendix E). Sometimes, a pollutant is considered both a criteria pollutant and a hazardous air pollutant. For instance arsenic, a hazardous air pollutant, is emitted as particulate matter. In this case, you should list the pollutant as both a hazardous air pollutant and particulate matter.

Example: Chem-All's tank farm includes 12 storage tanks containing ethanol, propanol, allyl alcohol, and acrylonitrile. All these substances are considered volatile organic compounds. Allyl alcohol, and acrylonitrile are regulated hazardous air pollutants as well. The condenser was installed to control allyl alcohol and acrylonitrile.

In item 9, they list volatile organic compounds, allyl alcohol, and acrylonitrile. Acrylonitrile and allyl alcohol are listed individually because they are regulated hazardous air pollutants as well as volatile organic compounds.

• **Inlet pollutant concentration**. Enter the inlet concentration for each pollutant. Be sure to specify the units. Some commonly used units are grains per actual cubic feet (gr/acf) and parts per million (ppm). You may use other units such as pounds per hour (lb/hr) or micrograms per cubic meter ($\mu g/m^3$), as long as you specify the units. If your control device targets a *criteria pollutant* that is also a *hazardous air contaminant*, you must include the hazardous air contaminant emissions in the total *criteria pollutant* emissions, and you must also list its emissions separately.

Example: To fill out the inlet concentration for the volatile organic compounds, Chem-All calculates the maximum hourly emissions from each of the 12 storage tanks and adds them all together because they are all volatile organic compounds. Note that ethanol and propanol, although not listed separately, are also included when adding up the total volatile organic compounds emissions from the farm. Chem-All then lists the inlet concentrations for allyl alcohol and

acrylonitrile separately because they are also hazardous air pollutants.

Pollutant	Inlet pollutant concentration
Allyl Alcohol	7.2 lb/hr
Acrylonitrile	35.1 lb/hr
Ethanol	325 lb/hr
Propanol	270 lb/hr
Total volatile organic compounds	637.3 lb/hr

• **Hood capture efficiency**. This is the portion of pollutant-laden air that is emitted from the *emissions unit* that actually makes it to the control device. If your facility has duct work that directly connects the emissions unit to the control device with no exhaust escaping, then the capture efficiency is 100 percent. If gases or particulates can bypass the control device, then the capture efficiency is something less than 100 percent. To document capture efficiency, you may use EPA recommendations or other values approved by the Department, as long as the assumptions are clearly stated. You may be required to do testing to get an accurate estimate of capture efficiency.

Example: Chem-All's condenser has a capture efficiency of 100% according to its manufacturer's guarantees. They have included the manufacturer's literature with their application.

• **Outlet pollutant concentration**. Enter the concentration of the pollutant at the outlet of the device. Use the same units that you used for the inlet concentration (e.g., gr/acf, ppm, etc.). To calculate pollutant emission rates, you may use *AP-42* emission factors or other Department-approved emission factors *only if you show your calculations and reference all sources of emission factors*. Attach copies of Material Safety Data Sheets and mass balance calculations if these are involved in the emission estimates. If you use stack testing data you must attach a copy of the stack test report. If the Department already has a copy of the stack test report, you only need to indicate the date the stack test was performed and when you sent in the report.

Example: Chem-All learned its outlet concentrations through stack tests done two years ago. They list this date the test was performed and submit stack test results as part of the application.

• **Efficiency**. Enter the control device efficiency for each pollutant that this device controls. Data entered in this table MUST BE DOCUMENTED. Attach the documentation. Acceptable methods of documentation include efficiency guarantees supplied by the control device manufacturer, relevant stack test results, and other means approved by the Department. Either an adequate summary of the report or the dates of the test and when the test results were received by the Department must be included with the application if stack test results are used.

Example: Through stack testing, Chem-All found its control efficiency to be 99%. They attach a summary of the stack test report including the date the test was performed and the date they submitted it to the Department. Here's what their table looks like:

Pollutant	Inlet pollutant concentration	Hood capture efficiency (%)	Outlet pollutant concentration	Efficiency (%)

	gr/acf	ppmv		gr/acf	ppmv	
Volatile organic compounds	648 lb/hr		100%	6.47 lb/hr		99%
Allyl Alcohol	7.2 lb/hr		100%	0.07 lb/hr		99%
Acrylonitrile	35.1 lb/hr		100%	0.35lb/hr		99%

Form 4530-126 - Emission Unit Hazardous Air Pollutant Summary

For each emission unit you must fill out a separate form for each material used or fuel burned. If for a particular emission unit, many different materials are used, the applicant should consider grouping materials and reporting emissions as the worst case for a particular group of materials. Attach a Material Safety Data Sheet (MSDS) for each material used.

Pollutant CAS. Look up the Chemical Abstract System (CAS) number for each *hazardous air contaminant* in Table 2 of Ch. NR 407, Wis. Adm. Code, which is listed in Appendix E. Enter the number for each contaminant. *If you are having trouble finding the right CAS, the computer forms will give you a number of ways to try to find it. If you absolutely cannot find the CAS, fill in the pollutant name.* There are two cases where a contaminant does not have to be listed. These are described below.

Case 1: When relying on information in an approved MSDS to determine emissions, you do not need to include information on *trace contaminants*. There are two kinds of *trace contaminants*. 1) If a material contains less than 1% of a *hazardous air contaminant*, it is considered a *trace contaminant*. 2) If that hazardous air contaminant is footnoted as a suspected or confirmed human carcinogen, then it is a *trace contaminant* if it makes up less than 0.1% of the material being used. See Appendix I for a list of suspected and confirmed human carcinogens.

Case 2: Only facilities that manufacture or process pesticides, rodenticides, insecticides, herbicides or fungicides need to include emissions of contaminants in Table 2 of s. NR 445.04 Wis. Adm. Code.

Actual Emissions. Actual emissions can be found on the annual *air emissions inventory* report for your facility or can be calculated from *AP-42* emissions factors, actual hours of operation and actual yearly consumption of raw materials. Present the information in the same units (i.e., lbs/hr or lbs/yr) as the threshold values in ch. NR 445, Wis. Adm. Code, for a given contaminant. Show and attach calculations on form 4530-135.

Maximum Theoretical Emissions. Calculate the *maximum theoretical emissions* of each *hazardous air contaminant* from this *emissions unit*. Present the information in the same units (i.e., lbs/hr or lbs/yr) as the threshold values in ch. NR 445, Wis. Adm. Code, for a given contaminant. Maximum theoretical emissions is defined and explained, and example calculations are given in Appendix F. When calculating maximum theoretical emissions, include any *fugitive emissions* associated with this process.

Potential to Emit. Calculate the *potential to emit* for each *hazardous air contaminant* from this

emissions unit. Report this information in units of tons per year. *Potential to emit* is defined and explained, and example calculations are given in Appendix J. When calculating potential to emit, do not include any *fugitive emissions* associated with this process.

Example: JB Coating, Inc. manufactures and coats wood jewelry boxes with a clear lacquer and then stamps the names of local tourist attractions on the boxes. They typically use 4.5 gallons of lacquer per hour but are capable of using up to 5.0 gal/hr. Petroleum naphtha is used as a cleaner for the stamping portion of the process line. The VOC emissions are controlled by 87% overall. This limitation is in their new source permit #91-XX-999. The Material Safety Data Sheet (MSDS) for the lacquer lists 8.5 lb/gal as the density. The MSDS also shows that the lacquer is made up of nine compounds and gives the weight percentage of each.

To find the annual emissions of each compound that makes up the lacquer, JB Coating multiplies the hourly usage rate of the lacquer by its density and then by the weight percent of each compound.

When a substance's percent by weight is given as a range, the larger value is used in the calculations for example; the MSDS specified a range of 49%-15% of 2-Butoxyethanol.

Sample calculation using 2-Butoxyethanol (weight % is 49%):

Actual emissions: 4.5 gal/hr * 8.5 lb/gal * (0.49) * (1-0.87) = 2.44 lb/hr

Maximum theoretical emissions: [5 gal/hr * 8.5 lb/gal * (0.49)] = 20.82 lb/hr

Potential to emit: 20.82 lb/hr * 24 hrs/day * 365 days/yr * 1 ton/2000 lb * (1-0.87) = 11.85 TPY

This table summarizes the weight percentages of each compound, and then the actual emissions of these compounds.

Compounds	CAS #	% by Wt.	Actual
2-Butoxyethanol	111-76-2	49	2.44 lbs/hr
n-Butyl alcohol	71-36-3	10	0.50 lbs/hr
Soybean oil*	8001-22-7	2	
Dioctyl phthalate*	117-84-0	1	
Castor oil*	8001-79-4	8	
Stoddard solvent (mineral spirits)	8052-41-3	6	0.30 lbs/hr
Methyl isobutyl ketone	108-10-1	19	0.94 lbs/hr
Isopropyl alcohol*	67-63-0	4	
Benzene	71-43-2	0.01-0.09	

*These compounds are not hazardous air pollutants, so they don't need to be listed on form 4530-126.

JB Coatings lists only 2-butoxyethanol, n-butyl alcohol, mineral spirits, and methyl isobutyl ketone on their 4530-126 form. They do not list benzene because it is a *trace contaminant* -- although it is a confirmed human carcinogen, it makes up less than 0.1% of the lacquer. Here is their table:

Pollutant	Actual	Maximum Theoretical	Potential to Emit

CAS			Emissions			
		Units		Units		Units
111-76-2	2.44	lb/hr	20.82	lbs/hr	11.85	TPY
71-36-3	0.50	lb/hr	4.25	lbs/hr	2.42	TPY
8052-41-3	0.30	lb/hr	2.55	lbs/hr	1.45	TPY
108-10-1	0.94	lb/hr	8.08	lbs/hr	4.60	TPY

Form 4530-127 - Facility Hazardous Air Pollutant Summary
If you filled out form 4530-126, you must also fill out this form. Be sure the identifications and any prefilled information are correct.

Item 3. For each *hazardous air contaminant* listed on the 4530-126 forms, add up the *maximum theoretical emissions* from every process and *emissions unit* that emits this contaminant. If you are using electronic forms, the emissions of each contaminant on 4530-126 forms will automatically get added up and entered into form 4530-127.

Compare these facility-wide emissions of each *hazardous air contaminant* to Table 2 of Ch. NR 407, Wis. Adm. Code, listed in Appendix E. List every *hazardous air contaminant* that is above the inclusion level and enter its total maximum theoretical emissions. At this point, if you find some contaminant emissions are not high enough to be included on this form, you may go back and delete them from form 4530-126. Complete this form by adding up and listing the total actual emissions and *potential to emit* for each contaminant from each process.

Example: JB Coating, Inc., described in the example for form 4530-126, has two boilers that burn natural gas in addition to the coating process. The boilers emit formaldehyde, POM, and benzene. The coating process emits benzene and other *hazardous air contaminants*, as listed in the above example. JB filled out 3 form 4530-126s, one for each emissions unit.

B01's and B02's maximum theoretical emissions of benzene are each 71.6 pounds per year. P01's benzene emissions are considered to be *trace contaminants* so are not included (see example for form 4530-126). Because the boilers' benzene emissions are higher than the limits in Appendix E of 30 lb/yr, JB must list this contaminant on form 4530-127. JB adds up the benzene maximum theoretical emissions listed on the 2 form 4530-126s for the boilers and enters the total on the table. Then they add and list the actual and the *potential to emit* totals. They follow these same steps for formaldehyde, POM and the other hazardous air contaminants from the coating process. They find that POM is emitted in amounts less than the inclusion level in Appendix E, so they do not include it on form 4530-126 or on this table. Here is their table:

Pollutant CAS	Actual		Maximum theoretical emissions		Potential to emit	
		Units		Units		
71-43-2 (Benzene)	64	lb/yr	143.2	lb/yr	0.0716	TPY

10215-33-5 (1-methoxy-2-aceteoxypropane)	7.1	lb/hr	9.4	lb/hr	5.35	TPY
	2.5	lb/hr	5.2	lb/hr	2.96	TPY
67-63-0 (Isopropyl Alcohol)	1.6	lb/hr	4.3	lb/hr	2.45	TPY
111-76-2 (2-Butoxyethanol)	18.7	lb/hr	20.82	lb/hr	11.85	TPY
50-00-0 (formaldehyde)	210	lb/yr	1284	lb/yr	0.642	TPY

Form 4530-128 - Emissions Summary by Emissions Unit

You must fill out one of these forms for each *emissions unit* at your facility. Do not fill out this form for insignificant *emissions units*. Be sure the unit identifications and any prefilled information are correct. Show and attach calculations on form 4530-135.

Air Pollutant. Provide emission levels for each of the listed pollutants that your facility emits.

Actual Emissions. Actual emissions can be found on the annual air emissions inventory report for your facility or can be calculated from *AP-42* emissions factors, actual hours of operation and actual yearly consumption of raw materials. Fill in the actual emissions in the space provided and identify which units you are using by using the code on the bottom of the form. The units you use should correspond with any emission limitation which applies to this pollutant. You must also provide the emissions in tons per year.

Maximum Theoretical Emissions. Calculate the *maximum theoretical emissions* of each air pollutant from this *emissions unit*. *Maximum theoretical emissions* is defined and explained, and example calculations are given in Appendix F. When calculating *maximum theoretical emissions*, include any *fugitive emissions* associated with this process. Fill in the maximum theoretical emissions in the space provided and identify which units you are using by using the code on the bottom of the form. The units you use should correspond with any emission limitation which applies to this pollutant. You must also provide the emissions in tons per year.

Potential to Emit. Calculate the *potential to emit* for each air pollutant from this *emissions unit*. *Potential to emit* is defined and explained, and example calculations are given in Appendix J. When calculating *potential to emit*, do not include any *fugitive emissions* associated with this process. *Potential to emit* should be expressed in tons per year.

Maximum Allowable. Calculate the *maximum allowable* emissions for each air pollutant from this *emissions unit*. Take into account any state or federal emission limits which affect your operation, any previous permits or orders which limit your operation, any pollution control efficiencies, and any equipment limitations. If there are no applicable state of federal emission limits and you have no previous permits or orders, your maximum allowable emissions will be equal to your *potential to emit*. Fill in the *maximum allowable* emissions in the space provided and identify which units you are using by using the code on the bottom of the form. You must also provide the emissions in tons per year.

Example: JB Coating, Inc. uses approximately 12,000 gallons per year of clear lacquer to manufacture and coat wood jewelry boxes stamped with the names of local tourist attractions. About 2,200 gallons per year of petroleum naphtha are used as a cleaner for the stamping portion of the process line. Ch. NR 424, Wis. Adm. Code, requires that JB control organic compound emissions from this process by 85%. JB installed a thermal incinerator that controls VOC emissions by 87% overall in order to meet this regulation. Their normal operating schedule is 16 hours per day, 200 days per year.

JB can spray a maximum of 5 gallons per hour of lacquer. The MSDS for the lacquer shows the following information under Section III-Physical/Chemical Characteristics.

Weight per gallon:	8.5 lb
VOC (% v/v) :	75
VOC (% w/w):	65.8

With this information, they are able to do the following calculations, which they attach on form 4530-135:

Actual emissions: 12,000 gal/yr * 0.658 * 8.5 lb/gal * (1-.87) = 8725.1 lb/yr
8725.1 lb/yr * 1 yr/200 days * 1 day/16 hrs = **2.73 lb/hr**
8725.1 lb/yr * 1 ton/2000 lb = **4.36 TPY**

Maximum theoretical: 5 gal/hr * 0.658 * 8.5 lb/gal = **27.96 lb/hr**
27.96 lb/hr * 24 hrs/day * 365 days/yr * 1 ton/2000 lb = **122.46 TPY**

Potential: 27.96 lb/hr * (1-.85) = **3.63 lb/hr**
3.63lb/hr * 24 hrs/day * 365 days/yr * 1 ton/2000 lb = **15.90 TPY**
(Note that the legal requirement of 85% control, not the actual performance, is used in the calculation of potential to emit.)

Maximum allowable: 27.96 lb/hr * (1-.85) = **4.19 lb/hr**
4.19 lb/hr * 24 hrs/day * 365 days/yr * 1 ton/2000 lb = **18.35 TPY**

They estimate a maximum of 1.0 gallons per hour of petroleum naphtha are used. The MSDS for petroleum naphtha shows:

Weight per gallon:	6.7 lb
VOC (% v/v):	100

With this information, they are able to do the following calculations, which they attach on form 4530-135:

Actual emissions: 2200 gal/yr * 1.0 * 6.7 lb/gal * (1-.87) = 1916.2 lb/yr
1916.2 lb/yr * 1 yr/200 days * 1 day/16 hr = 0.60 lb/hr
1916.2 lb/yr * 1 ton/2000 lb = 0.96 TPY

Maximum theoretical: 1.0 gal/hr * 6.7 lb/gal = 6.7 lb/hr
6.7 lb/hr * 24 hrs/day * 365 days/yr * 1 ton/2000 lb = 29.35 TPY

Potential: 6.7 lb/hr * (1-.87) = 0.87 lb/hr
0.87 lb/hr * 24 hrs/day * 365 days/yr * 1 ton/2000 lb = 3.81 TPY

Maximum allowable: 6.7 lb/hr * (1-.85) = 1.00 lb/hr
1.00lb/hr * 24 hrs/day * 365 days/yr * 1 ton/2000 lb = 4.38 TPY

JB adds together the emissions from the lacquer and the petroleum naphtha because they are both VOCs, and enters them onto form 4530-128 as follows:

Air Pollutant	Actual			Maximum theoretical emissions			Potential to emit			Maximum allowable		
		U	TPY		U	TPY		U	TPY		U	TPY
Organic compounds	3.33	1	5.32	34.66	1	151.81	4.50	1	19.71	5.19	1	22.73

Form 4530-129 - Facility Emissions Summary

You must fill out one of these forms for your facility. Be sure the identifications and any prefilled information are correct.

Air pollutant. For each pollutant listed on the 4530-128 forms, add up the *maximum theoretical emissions* from every process that emits this pollutant. If you are using electronic forms, the emissions of each pollutant on 4530-128 forms will automatically get added up and entered into form 4530-129.

Compare these facility-wide emissions of each pollutant to Table 2 of Ch. NR 407, Wis. Adm. Code, listed in Appendix E. If the *maximum theoretical emissions* of any pollutant emitted from your entire facility are less than 5 times the level specified in Table 2 you do not need to list that pollutant on this form. At this point, if you find some pollutant emissions are not high enough to be included on this form, you may go back and delete them from form 4530-128. Complete this form by adding up and listing the total actual emissions, *potential to emit* and *maximum allowable* for each pollutant from each process.

Example: JB Coating, Inc., described in the example for form 4530-128, has two boilers in addition to the coating process. All three emit nitrogen oxides and organic compounds. The two boilers also emit particulates. JB filled out 3 form 4530-128s, one for each emissions unit.

B01's and B02's maximum theoretical emissions are each 1 ton per year, P01's are 151.83 tons per year. Because each emissions unit's organic compound emissions are higher than the limits in Appendix E of 2000 lb/yr, JB must list this pollutant on form 4530-129. JB adds up the organic compound maximum theoretical emissions listed on all 3 of the form 4530-128s and enters the total on the table. Then they add and list the actual, the potential to emit, and the maximum allowable totals. They follow these same steps for the particulates and nitrogen oxides. Here is their table:

Air Pollutant	Actual	Maximum theoretical emissions	Potential to emit	Maximum allowable
	TPY	TPY	TPY	TPY
Particulates	0.2	2.2	2.2	2.2
Organic compounds	5.72	153.83	21.73	24.76
Nitrogen oxides	10.2	26	26	26

Form 4530-134 - Index of Air Pollution Permit Application Forms

After you have finished filling out your permit application, use form 4530-134 as a checklist. Check

off the box for each form that you have completed. If applicable, indicate how many of each form you completed.

Example: KLH & Co. has three emissions units (2 boilers and 1 miscellaneous process), each venting from a separate stack. The boilers each use a baghouse for controlling emissions, which include hazardous pollutants. KLH is a part 70 source, so they must complete compliance certification forms. They plan to monitor control system parameters for their boiler baghouses and to keep records on a daily basis for the other process. They checked the following boxes on form 4530-134 and listed the number of each form they completed:

Forms		Total number of this form:
[ ]	4530-100	
[√]	4530-101	
[√]	4530-102	
[ ]	4530-103	3
[√]	4530-104	2
[√]	4530-109	1
[ ]	4530-117	2
[ ]	4530-118	3
[√]	4530-121	2
[√]	4530-125	1
[ ]	4530-126	2
[√]	4530-127	1
[√]	4530-128	3
[√]	4530-129	1

VI. Signature. The *responsible official* of your facility must sign this form or the application will not be complete. If you are using electronic forms, print out a copy of this page, sign it and return it with your diskette. *Non-part 70 sources* do not have to certify their compliance, and therefore do not need to check a box in question B, but they must still sign this form to show completeness. Future renewal applications will contain compliance requirements for *non-part 70 sources* and they will be required to sign and certify compliance and completeness at that time.

Form 4530-135 - Supplemental Information

It is very important that you label this form properly so the permit reviewer knows which form it is supplementing. Be sure to enter a form number as well as an item number. For instance, if you need extra room to describe the operations served by your storage tank T17. You must enter in item 3, "4530-105" and for *emissions unit*, "T17." Then enter "item 21" in the table and supply the extra information.

This form may be used in many different ways. It is designed to provide flexibility. Use this form to provide any additional information that will give the Department a clear picture of the operations at your facility.

APPENDIX A

DEFINITIONS

APPENDIX A
DEFINITIONS

Affected Source:
A stationary source that includes one or more emissions units that are subject to an emissions reduction requirement or emissions limitation under the acid rain program." (NR 400.02 (1q), Wis. Admin. Code)

Air Contaminant:
has the meaning given in s. 144.30(1), Stats. "Air contaminant" means dust, fumes, mist, liquid, smoke, other particulate matter, vapor, gas, odorous substances or any combination thereof but shall not include uncombined water vapor. (NR 400.02 (2), Wis. Adm Code)

Air Emission Inventory:
This annual reporting is required by NR 438, Wis. Admin. Code. Facilities that actually emit at levels greater than the reporting levels in NR 438, must file an annual air emission inventory. If the same sources need to apply for an operation permit, they will be assessed fees on their emissions.

Ambient Air Increment:
The maximum allowable increase in concentration of an air contaminant above the baseline concentration of the air contaminant. The baseline concentration is the ambient concentration level which exists in the baseline area at the time of the applicable baseline date. This concentration is determined by the Department for each air contaminant for which a baseline date is established. (See Ch. NR 405, Wis. Adm. Code on Prevention of Significant Deterioration.)

Ambient Air Standard:
The specified levels of air quality which are necessary to protect the public health and welfare. These standards include primary standards which are set to protect the public health, and secondary standards which are set to protect the public welfare. The Federal government sets the air standards and periodically reviews them.

Applicable Requirements:
means all of the following as they apply to *emissions units* at a source, including requirements that have been promulgated or approved by EPA or the department through rulemaking at the time of permit issuance but for which compliance is required after the date of permit issuance:

(a) Any standard or other requirement provided for in the applicable implementation plan approved or promulgated by EPA through rulemaking in 40 CFR part 52;
(b) Any term or condition of any construction permit issued pursuant to ch. NR 405, 406 or 408 or to regulations approved or promulgated by EPA through rulemaking under title I of the act (42 USC 7401 to 7515);
(c) Any standard or other requirement under section 111 of the act (42 USC 7411);
(d) Any standard or other requirement under section 112 of the act (42 USC 7412);
(e) Any standard or other requirement of the acid rain program;
(f) Any requirements established pursuant to section 504(b) or section 114(a)(3) of the act (42 USC 7661c(b) or 7414(a)(3));
(g) Any standard or other requirement governing solid waste incineration, under section 129 of the act (42 USC 7429);
(h) Any standard or other requirement for consumer and commercial products, under section 183(e) of the act (42 USC 7511b(e));

(i) Any standard or other requirement for tank vessels, under section 183(f) of the act (42 USC 7511b(f));
(j) Any standard or other requirement of the regulations promulgated to protect stratospheric ozone under title VI of the act (42 USC 7671 to 7671q), unless the administrator has determined that the requirements need not be contained in an operation permit;
(k) Any national ambient air quality standard or increment or visibility requirement under part C of title I of the act (42 USC 7470 to 7492); and
(l) Any emission limit or other requirement in ss. 144.30 to 144.426, Stats. or chs. NR 400 to 499.
(m) Any source-specific emission limitation established pursuant to ss. 144.30 to 144.426, Stats., or rules promulgated thereunder.

Clean Air Act:
The Clean Air Act amendments of 1990 represent the fifth major effort by Congress to address clean air legislation. The first Clean Air Act was passed in 1967 and provided authority to establish air quality standards. The Clean Air Act of 1970 was more comprehensive, laying the foundation for regulatory efforts. It was again modified in 1974 and 1977. The 1990 Clean Air Act amendments cover air toxics, acid rain, operation permits, non-attainment areas, stratospheric ozone depletion, auto standards/clean fuels, and enforcement.

Combined Total Tankage Capacity:
Add up the maximum capacity of all tanks at your facility and compare this total to the exemption levels listed in NR 406 or NR 407, Wis. Admin. Code.

Comprehensive Environmental Response Compensation and Liability Act (CERCLA):
This is the Federal law that created the Superfund Program. This program deals with clean-ups of any spills of hazardous materials.

Criteria Pollutant:
The criteria pollutants are: particulate matter, sulfur dioxide, nitrogen oxides, organic compounds, carbon monoxide, and lead.

Emissions Unit:
Any part of a stationary source which emits or is capable of emitting any air contaminant. (NR 400.02(35), Wis. Admin. Code) "Basic emissions unit" means the smallest collection of equipment which in combination emits or is capable of emitting any air contaminant. (NR 400.02(17m), Wis. Admin. Code)

Fugitive Emissions:
An emission from any emission point within a facility other than a flue or stack. (NR 400.02(42), Wis. Admin. Code) Be aware when fugitive emissions are included in the calculation of maximum theoretical emissions and potential to emit and when these emissions are not included.

General Operation Permit
An operation permit that can be issued to certain types of facilities, process lines or emissions units that the Department has identified as having similar operations, air contaminant emissions and air contaminant control systems.

Hazardous Air Contaminant:
Any air contaminant for which no ambient air quality standard is set in ch. NR 404 and which the department determines may cause or significantly contribute to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness, or may pose a significant threat to human health or the environment. The term hazardous air contaminant includes, but is not limited to, the substances listed in Tables 1 to 4 in s. NR 445.04. (NR 400.02(6), Wis. Admin. Code)

Hazardous Air Pollutant:
Any pollutant listed in Sec. 112 of the Clean Air Act.

Indirect Source:
Any stationary source which conveys motor vehicles or which attracts or may attract mobile source activity and thus indirectly causes the emission of any air contaminant. Such indirect sources include, but are not limited to highways and roads; parking facilities; retail, commercial and industrial facilities; recreation, amusement, sports and entertainment facilities; airports; office and government buildings; and educational facilities. (NR 400.02 (47), Wis. Admin. Code)

Maximum Allowable Emissions:
The maximum emissions allowed by permit.

Maximum Theoretical Emissions:
The quantity of air contaminants that theoretically could be emitted by a stationary source without control devices based on the design capacity or maximum production capacity of the source. When determining annual maximum theoretical emissions, a source shall be presumed to operate 8,760 hours per year unless its physical design precludes 8,760 hours of operation per year. Where a source's physical design restricts the number of hours it may operate, annual maximum theoretical emissions shall be calculated taking this restriction into account. In determining the maximum theoretical emissions of VOCs for a source, the design capacity or maximum production capacity shall include the use of raw materials, coatings and inks with the highest VOC content used in practice by the source. Realistic operating conditions shall be taken into account in determining emissions under this subsection. (NR 400.02 (53m), Wis. Admin. Code) Also see Appendix F.

Metropolitan County:
means a county which has been designated as either a metropolitan statistical area or a primary metropolitan statistical area be the U.S. department of commerce in Federal Information Processing Standards Publication 8-5, October 31, 1984, incorporated by reference in ch. NR 484, Wis. Adm. Code.

Modification:
Any physical change in, or change in the method of operation of, a stationary source that increases the amount of emissions of an air contaminant or that results in the emission of an air contaminant not previously emitted. A modification does not include any changes identified in s. NR 406.04(4).

New Source Performance Standards (NSPS):
These are listed in s. NR 440, Wis. Adm. Code. Any source that is subject to an NSPS becomes a *part 70 source*.

Non-Part 70 Source:
Any source which is required to obtain and air pollution operation permit and is not a *part 70 source*.

Part 70 Source:
Includes any *major source*, any electric utility affected by the acid rain provisions of the Clean Air Act, and any solid waste incineration unit which has a maximum capacity greater than or equal to 250 tons per day.

Potential to Emit:
The maximum capacity of a stationary source to emit any air contaminant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air contaminant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the administrator. Also see Appendix J.

Prevention of Significant Deterioration (PSD):
This is the Federal new source review (construction permit) program for large new stationary sources. Wisconsin has been delegated the authority to operate this program in the state. Any source that is subject to PSD is considered a Part-70 source for an operation permit. (s. NR 405, Wis. Admin. Code)

Rated Capacity:
To determine rated capacity, an owner or operator may need to contact the equipment supplier or investigate any literature on specific processes. In looking at rated capacity, the Department is looking for the maximum continuous operations. If your process (such as an electric generation turbine) has instantaneous operating capacity that could only be maintained for short periods of time, this should be noted on your application and the more accurate maximum continuous rated capacity should be used for emissions calculations.

Reactive Organic Gas (ROG):
Another name for volatile organic compounds -- specifically the compounds that participate in ground-level ozone formation.

Responsible Official:
A. For a corporation, one of the following:

1. A president, secretary, treasurer or vice president of the corporation in charge of a principal business function.

2. Any other person who performs similar policy or decision-making functions for the corporation.

3. A duly authorized representative of a person listed in 1 or 2 above if the representative is responsible for the overall operation of one or more manufacturing, production or operating facilities applying for or subject to a permit and the representative is approved in advance by the Department.

B. For a partnership or sole proprietorship, a general partner or the proprietor.

C. For a municipality, or a state, federal or other public agency, either a principal executive officer or ranking elected official. For the purposes of this paragraph, a principal executive officer of a federal agency includes the chief executive officer having responsibility for the overall operations of a principal geographic unit of the agency, for example, a regional administrator of EPA.

D. Or, a designated representative as defined in 40 CFR 72.20107225 pertaining only to acid rain sources.

Significant Emission Rate (PSD):
Once you are a major source under the PSD program (see NR 405, Wis. Admin. Code), any net emissions increase modifications to your facility would be considered major and need to undergo PSD review if they exceed the significant emission rates. The significant emission rates are listed in NR 405.02 (27)(a), Wis. Admin. Code.

Stationary Source:
has the meaning given in s. 144.30(23), Stats. (NR 400.02 (96) Wis. Admin. Code). (23) "Stationary source" means any facility, building, structure or installation that directly or indirectly emits or may emit an air contaminant only from a fixed location. A stationary source includes an air contaminant source that is capable of being transported to a different location. A stationary source may consist of one or more pieces of process equipment, each of which is capable of emitting an air contaminant. A stationary source does not include a motor vehicle or equipment which is capable of emitting an air contaminant while moving.

Suspected or Confirmed Human Carcinogen:
Carcinogens are cancer-causing substances. The difference between suspected and known human carcinogens are the background studies that have been performed. If a substance has been directly linked to cancer in humans, it becomes a confirmed human carcinogen. If animal test studies indicate there is a cancer potential in humans, it is listed as a suspected human carcinogen.

Synthetic Minor, Non-Part 70 Source:
A source that takes legally enforceable restrictions on their operations to avoid becoming a major source, thus avoiding permitting as a *part 70 source* or a PSD source.

Table 1, 2, 3, or 4 of NR 445, Wis. Admin. Code:
These tables list out the hazardous air contaminants regulated by the State of Wisconsin. Tables 1 and 4 contain the acute hazardous substances, table 2 contains pesticides and table 3 has the known and suspected human carcinogens. The table values associated with each contaminant are the emission levels above which sources would need to apply for a permit or submit a compliance plan.

Trace Contaminants:
For the purpose of looking for hazardous air contaminants, if the material is only present as a trace contaminant it can be ignored. Trace contaminant is a contaminant listed on a material safety data sheet which constitutes less than 1% of the material being used or 0.1% of the material being used if the air contaminant is footnoted as a suspected or confirmed human carcinogen by the American Conference of Governmental Industrial Hygienists in the 1990-1991 Threshold Limit Value for Chemical Substances and Physical Agents and Biological Exposure Indices.

Trade Secret:
If you feel that some information that needs to be submitted is considered a trade secret, you can apply for confidentiality status under the petition rights in NR 2, Wis. Admin. Code.

Volatile Organic Compound (VOC):
Any organic compound which participates in atmospheric photochemical reactions. (NR 400.02 (100), Wis. Admin. Code) This includes any such organic compound other than the following compounds, which have been determined to have negligible photochemical reactivity:

(a) Methane,
(b) Ethane,
(c) Methylene chloride (Dichloromethane),
(d) 1,1,1-Trichloroethane (Methyl chloroform),
(e) Trichlorofluoromethane (CFC-11),
(f) Dichlorodifluoromethane (CFC-12),
(g) Chlorodifluoromethane (CFC-22),
(h) Trifluoromethane (FC-23),
(i) 1,1,1-Trichloro-2,2,2-trifluoroethane (CFC-113),
(j) 1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC-114),
(k) Chloropentafluoroethane (CFC-115),
(l) 1,1,1-Trifluoro-2,2-dichloroethane (HCFC-123),
(m) 2-Chloro-1,1,1,2-tetrafluoroethane (HCFC-124),
(n) Pentafluoroethane (HFC-125),
(o) 1,1,2,2-Tetrafluoroethane (HFC-134),
(p) 1,1,1,2-Tetrafluoroethane (HFC-134a),
(q) 1,1-Dichloro-1-fluoroethane (HCFC-141b),
(r) 1-Chloro-1,1-difluoroethane (HCFC-142b),
(s) 1,1,1-Trifluoroethane (HFC-143a),
(t) 1,1-Difluoroethane (HFC-152a), and
(u) Perfluorocarbon compounds which fall into the following classes:
    1. Cyclic, branched or linear completely fluorinated alkanes,
    2. Cyclic, branched or linear completely fluorinated ethers with no unsaturations,
    3. Cyclic, branched or linear completely fluorinated tertiary amines with no unsaturations, and
    4. Sulfur containing perfluorocarbons with no unsaturations and with sulfur bonds only to carbon and fluorine.

Note: The test methods used to measure VOC are specified in s. NR 439.06(3).

Wisconsin Administrative Code (Wis. Admin. Code):
A compendium of the regulations of the state. The Air Pollution Control regulations are found in NR 400 through NR 499, Wis. Admin. Code.

Wisconsin Statutes (Stats.):
Wisconsin statutes give the Department the authority to develop rules to meet the requirements of the statutory directives. Air pollution statutes are in section 144.

APPENDIX B
DEPARTMENT OF NATURAL RESOURCES

CONTACTS

APPENDIX C

CATEGORIES OF EXEMPT SOURCES

APPENDIX C
CATEGORIES OF EXEMPT SOURCES

I. **Specific Categories of Exempt Sources**. You are not required to submit a permit application if your facility consists solely of one of the following air pollution sources:

1. External combustion furnaces that do not burn any hazardous waste identified under ch. NR 605, *Wis. Adm. Code* or which have been issued a license under ch. NR 680, Wis. Adm. Code, and which are designed at a combined total capacity to burn the following fuels at the maximum rates indicated:
   a. Coal, coke or other solid fuels, except wood, at a heat input rate of not more than 1.0 million BTU per hour;
   b. Wood alone or wood in combination with gaseous or liquid fuels at a heat input rate of not more than 5.0 million BTU per hour:
   c. Residual or crude oil at a heat input rate of not more than 5.0 million BTU per hour:
   d. Distillate oil at a heat input rate of not more than 10 million BTU per hour; and
   e. Gaseous fuel at a heat input rate of not more than 40 million BTU per hour.

2. Equipment designed to incinerate solid wastes that are not pathological wastes, infectious wastes, municipal wastes or hazardous wastes under ch. NR 605, Wis. Adm. Code, at a rate of not more than 500 pounds per hour.

3. Equipment that is designed to dry grain at a rate of not more than 1,500 bushels per hour at a 5% moisture extraction and which is not subject to s. NR 440.47, Wis. Adm. Code.

4. Portland concrete batch plants that produce less than 20,000 cubic yards of concrete per month averaged over any 12 consecutive month period.

5. Storage tanks containing organic compounds with a true vapor pressure in pounds per square inch absolute at 70°F of less than 1.52 with a *combined total tankage capacity* of not more than 40,000 gallons.

6. *Volatile organic compound (VOC)* storage tanks with a *combined total tankage capacity* of not more than 10,000 gallons of volatile organic compounds.

7. Painting or coating operations, including associated quality assurance laboratories and cleaning operations which emit or will emit not more than 1,666 pounds of organic compounds per month, which are measured prior to entering and emission control devices.

8. Graphic arts operation, including associated quality assurance laboratories and cleaning operation which emit or will emit not more than 1,666 pounds of organic compounds per month, which are measured prior to entering any emission control device.

9. Cold cleaning equipment with a total air to solvent interface of 1.0 square meters or less during operation.

10. Open top vapor degreasing equipment with a total air to vapor interface of 1.0 square meters

or less during operation.

11. Dry cleaning operations with a total maximum operating capacity for all machines of 75 pounds of clothes per hour.

12. Private alcohol fuel production systems as defined in s. 144.438(1)(c), *Stats*.

13. Crematories.

14. Indirect malt dryers which are designed to burn fuels specified in par. 1 (above) at a heat input rate less than the rates specified in par. 1. (above).

15. A laboratory which emits organic compounds, sulfur dioxide, carbon monoxide, nitrogen oxides or particulate matter or a combination thereof at a rate of less than 5.7 pounds per hour unless the emissions of any single *hazardous air pollutant* as defined by sec. 112(b) of the act (42 USC) 7412(b)[1] equals or exceeds 10 tons per year or the cumulative emissions of all the hazardous air pollutants equals or exceeds 25 tons per year. Hourly emissions shall be determine, based on the quantitative estimate of air contaminants before they enter any emission control devices, by dividing the total uncontrolled emissions which would have occurred during a calendar month by the total hours of operation of the laboratory during that calendar month. A laboratory is in operation if laboratory apparatus or equipment is in use.

16. Equipment the primary purpose of which is to transport or sort paper.

17. Facilities for chlorination of municipal drinking water, the intake of once through industrial process or cooling water, or water for swimming pools, spas or other recreational establishments.

18. Gasoline dispensing facilities which dispense gasoline or other petroleum products.

19. Bulk gasoline plants which distribute gasoline or other petroleum products and which have an average daily throughput of less than 15,000 liters (4,000 gallons), based on a 30-day rolling average.

20. The following procedures for the remediation of soil or water contaminated with organic compounds:
    a. Landspreading, aeration or bioremediation or contaminated soil;
    b. Negative pressure venting of contaminated soil, provided the remediation is completed within 18 months or total organic compounds are emitted at a rate of not more than 5.7 pounds per hour, considering emission control devices;
    c. Pilot tests of negative pressure venting systems provided those tests are completed within 8 hours of startup and the air flow rate during the pilot test does not exceed 100 standard cubic feet per minute;
    d. Landfilling of contaminated soil;
    e. Application of biodegradation techniques to contaminated soil;
    f. Installation and use of devices which remove organic compounds from a private or

municipal potable water supply;

g. Installation and use of crop irrigation systems or dewatering wells to remediate contaminated water;
h. Installation and use of air strippers for treatment of contaminated water, provided the remediation is completed within 18 months;
i. Installation and use of any device or technique not listed in this paragraph which are used to remediate soil or water contaminated with organic compounds, if the device or technique is not portable and is not a thermal evaporation unit, and the remediation is completed within 18 months; and
j. Installation and use of any technique or device to remediate soil or water contaminated with organic compounds as part of on-site actions taken under the authority of the comprehensive environmental response compensation and liability act of 1980, as amended, 42 USC 9601 et seq.

Note: Even though these sources are exempt from permit requirements, they are still subject to the approval requirements under s. NR 419.07(2), Wis. Adm. Code.

21. Renovation or demolition operation involving friable asbestos containing material.

22. A combination of *emissions units* which consists of not more than one each of the following specific categories of sources:
    a. Fuel burning equipment otherwise exempt under par. 1. (above);
    b. Equipment designed to incinerate solid wastes otherwise exempt under par. 2. (above);
    c. Storage tanks of organic compounds with a combined total tankage capacity of not more than 40,000 gallons if not more than 10,000 gallons of the storage tanks' capacity is used for storage of volatile organic compounds; and
    d. Only one of the other specific category exemptions listed in pars. 3., 4., and 7. through 19.

23. Emergency electric generators powered by internal combustion engines which are fueled by gaseous fuels, gasoline or distillate fuel oil with an electrical output of less than 3,000 kilowatts.

24. ***INDIRECT SOURCES***. You do not need to submit a permit application if your facility consists solely of one of the following *indirect sources* of air pollution:
    a. *Existing sources*. All indirect sources on which construction or modification commenced on or prior to November 15, 1992.
    b. *Road and highway projects*. All indirect sources which are road or highway projects.
    c. *Indirect sources with associated parking*. If the indirect source will not be a road or highway project, an operation permit is required if the source will be:

        i. An indirect source located in a *metropolitan county* with a parking capacity of less than 1000 cars in its associated parking areas.
        ii. An indirect source located in a *metropolitan county* with a parking capacity increase of less than 1000 cars in its associated parking areas.
        iii. An indirect source located outside the *metropolitan counties* with a parking capacity of less than 1500 cars in its associated parking areas.

iv. An indirect source located outside the *metropolitan counties* with a parking capacity increase of less than 1500 cars in its associated parking areas.

Note: In order to be eligible for a specific exemption under sub. 4., 7., 8., 15., 19. or 20., the owner or operator shall keep and maintain records of materials used, emissions or production rates, whichever is appropriate, that are adequate to demonstrate that the source qualifies for the exemption. The owner or operator shall begin keeping these records no later than January 1, 1994 or the date that the source commences operation, whichever is later, and maintain them for a minimum of 5 years. After January 1, 1994, any air pollution source that ever exceeds any level listed in sub. 4., 7., 8., 15., 19., or 20 is not eligible for the exemption under that subsection. If you anticipate that your facility will exceed these exemption levels listed, you must apply for a permit prior to exceeding the specified level.

II. **General Categories of Exempt Sources** You are not required to submit a permit application if your facility meets all of the following criteria:

1. The *maximum theoretical emissions* (see Appendix F) from the *entire facility* for sulfur dioxide or carbon monoxide do not exceed 9.0 pounds per hour for each *air contaminant*;

2. The *maximum theoretical emissions* from the *entire facility* for particulate matter, nitrogen oxides or organic compounds do not exceed 5.7 pounds per hour for each *air contaminant*;

3. The *maximum theoretical emissions* from the *entire facility* for lead do not exceed 5.7 pounds per hour.

4. The *entire facility* will not emit any of the air contaminants listed in s. NR 405.02(27)(a), Wis. Adm. Code at a rate greater than the applicable emission rate listed in s. NR 405.02(27)(a), Wis. Adm. Code.

5. The *entire facility* will not emit any *hazardous air contaminant* listed in Table 1, 2, 3 or 4 of s. NR 445.04, Wis. Adm. Code in amounts greater than the emission rate listed in Table 1, 2, 3 or 4 of s. NR 445.04, Wis. Adm. Code for the air contaminant for the respective stack height.

6. The *entire facility* will not have *maximum theoretical emissions* of any single *hazardous air pollutant* as defined by section 112(b) of the act (42 USC 7412(b)) that equal or exceed 10 tons per year or cumulative *maximum theoretical emissions* of all hazardous air pollutants defined by section 112(b) of the act (42 USC 7412(b)) that equal or exceed 25 tons per year .

APPENDIX D

RESOURCE MATERIALS

APPENDIX D
RESOURCE MATERIALS

The following sources may be useful in filling out permit application forms.

The Small Business Assistance Program
If you have fewer than 100 employees at your facility, you can call the Small Business Assistance Program to help you determine if you need a permit or to provide general assistance with the forms. Call the Department of Development Small Business Hotline at 1-800-HELP-BUS or (608) 266-9869.

Chapters NR 400 to 499 of the Wisconsin Administrative Code
The complete Code is distributed to the county law libraries; to the libraries of the University of Wisconsin Law School and Marquette University Law School; to the State Historical Society; to the Legislative Reference Bureau and to the State Law Library, and to certain designated public libraries throughout the state.

The complete Code or appropriate sections can be purchased from:

The Department of Administration
Document Sales and Distribution
P.O. Box 7840
Madison, WI 53707
phone: (608) 266-3358

Sections 144.30 to 144.426 of the Wisconsin Statutes - Wisconsin Natural Resources Laws, Environmental Protection, PUBL-LC-002.
The appropriate sections of the Wisconsin Statutes can be purchased at the address listed above.

The Clean Air Act and Federal Air Program Regulations (40 CFR Part 50-99)
Can be purchased from:

Superintendents of Documents
U.S. Government Printing Office
Mail Stop SSOP
Washington D.C. 20402-9328
phone: (202) 783-3238

Other sources of information would include existing permits and orders that have been issued to the facility and the preliminary determinations for those permits, the *Air Emission Inventory*, and the Department's files regarding your facility.

Text books
Handbook of Chemistry and Physics, published by the CRC Press, Inc.
The Chemical Engineers' Handbook, published by the McGraw-Hill Book Company

Sources of emission factors for determining your facility's air pollution emissions:
Compilation of Air Pollutant Emission Factors, Publication Number: AP-42 The United States

Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, NC 27711.

AIRS Facility Subsystem Source Classification Codes and Emission Factor Listing For Criteria Air Pollutants, Document Number: EPA 450/4-90-003 The United States Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, NC 27711.

Toxics Air Pollutant Emission Factors - A Compilation for Selected Air Toxic Compounds and Sources, Document Number: EPA 450/2-88-006a The United States Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, NC 27711.

The above publications can be obtained for a fee from:

The National Technical Information Services
5285 Port Royal Road
Springfield, Virginia 22161
Phone: (703) 487-4807

APPENDIX E

AIR CONTAMINANT INCLUSION LEVELS

APPENDIX E
AIR CONTAMINANT INCLUSION LEVELS

Table 2, Ch. NR 407, Wis. Adm. Code (in CAS number order)

Chemical Abstract Service Number[7]	Air Contaminant Name	Sources of Regulation (See Footnotes Below)	Inclusion Level (lbs/yr)
*	Chlorinated dioxins and furans (total equivalents)	4	0.00001
*	Coke oven emissions	2, 3	2.5
*	Fine mineral fibers (includes mineral fiber emissions from facilities manufacturing or processing glass, rock, or slag fibers (or other mineral derived fibers) of average diameter 1 micrometer or less)	2	2,000.0
*	Fluorides, (inorganics), as F	3	182.9
*	Glycol ethers[8]	2	2,000.0
*	Group A Pharmaceuticals (a total of all air contaminants listed as Group A Pharmaceuticals)	3	2.5**
*	Group B Pharmaceuticals (a total of all air contaminants listed as Group B Pharmaceuticals)	3	25**
*	Hydrochlorofluorocarbon-121 (HCFC-121)	5	2,000.0
*	Hydrochlorofluorocarbon-122 (HCFC-122)	5	2,000.0
*	Hydrochlorofluorocarbon-131 (HCFC-131)	5	2,000.0
*	Hydrochlorofluorocarbon-221 (HCFC-221)	5	2,000.0
*	Hydrochlorofluorocarbon-222 (HCFC-222)	5	2,000.0
*	Hydrochlorofluorocarbon-223 (HCFC-223)	5	2,000.0
*	Hydrochlorofluorocarbon-224 (HCFC-224)	5	2,000.0
*	Hydrochlorofluorocarbon-226 (HCFC-226)	5	2,000.0
*	Hydrochlorofluorocarbon-231 (HCFC-231)	5	2,000.0
*	Hydrochlorofluorocarbon-232 (HCFC-232)	5	2,000.0
*	Hydrochlorofluorocarbon-233 (HCFC-233)	5	2,000.0

Chemical Abstract Service Number[7]	Air Contaminant Name	Sources of Regulation (See Footnotes Below)	Inclusion Level (lbs/yr)
*	Hydrochlorofluorocarbon-234 (HCFC-234)	5	2,000.0
*	Hydrochlorofluorocarbon-235 (HCFC-235)	5	2,000.0
*	Hydrochlorofluorocarbon-241 (HCFC-241)	5	2,000.0
*	Hydrochlorofluorocarbon-242 (HCFC-242)	5	2,000.0
*	Hydrochlorofluorocarbon-243 (HCFC-243)	5	2,000.0
*	Hydrochlorofluorocarbon-244 (HCFC-244)	5	2,000.0
*	Hydrochlorofluorocarbon-251 (HCFC-251)	5	2,000.0
*	Hydrochlorofluorocarbon-252 (HCFC-252)	5	2,000.0
*	Hydrochlorofluorocarbon-253 (HCFC-253)	5	2,000.0
*	Hydrochlorofluorocarbon-261 (HCFC-261)	5	2,000.0
*	Hydrochlorofluorocarbon-262 (HCFC-262)	5	2,000.0
*	Hydrochlorofluorocarbon-271 (HCFC-271)	5	2,000.0
*	Iron salts, soluble, as Fe	3	73.6
*	Nitrogen oxides	1, 4	2,000.0
*	Nitrosoamines (a total of all air contaminants listed as Nitrosoamines)	3	25**
*	Particulate matter	4	2,000.0
*	PM_{10}	1, 4	2,000.0
*	Polycyclic Organic Matter (a total of all air contaminants listed as Polycyclic Organic Matter)	2, 3	25**
*	Total reduced sulfur and reduced sulfur compounds	2	2,000.0
*	Volatile organic compounds (Reactive organic gases)	1	2,000.0
50-00-0	Formaldehyde	2, 3	25.0

50-18-0	Cyclophosphamide	3	Group A Pharmaceuti-cal
50-28-2	Oestradiol	3	Group B Pharmaceuti-cal
50-32-8	Benzo(a)pyrene	3	Polycyclic Organic Matter
50-55-5	Reserpine	3	Group B Pharmaceuti-cal
51-28-5	2,4-Dinitrophenol	2	2,000.0
51-52-5	Propylthiouracil	3	Group B Pharmaceuti-cal
51-75-2	Nitrogen mustards (2,2'-Dichloro-N-methyldiethylamine)	3	Group B Pharmaceuti-cal
51-79-6	Urethane (Ethyl carbamate)	2, 3	25.0
52-24-4	Tris(1-aziridinyl)phosphine sulfide	3	Group B Pharmaceuti-cal
53-70-3	Dibenz(a,h)anthracene	2, 3	Polycyclic Organic Matter
53-96-3	2-Acetylaminofluorene	2	2,000.0
55-18-5	N-Nitrosodiethylamine	3	Nitrosoamine
55-38-9	Fenthion	3, 6	14.5
55-98-1	1,4-Butanediol dimethanesulphonate (Myleran)	3	Group A Pharmaceuti-cal
56-23-5	Carbon tetrachloride	2, 3, 5	2.5
56-38-2	Parathion	2, 3, 6	7.4
56-53-1	Diethylstilbestrol (DES)	3	Group A Pharmaceuti-cal
56-55-3	Benz(a)anthracene	3	Polycyclic Organic Matter
57-14-7	1,1-Dimethylhydrazine	2, 3	25.0
57-24-9	Strychnine	3, 6	10.9
57-41-0*	Phenytoin and sodium salt of phenytoin	3	Group B Pharmaceuti-

			cal
57-57-8	beta-Propiolactone	2, 3	25.0
57-74-9	Chlordane	2, 3, 6	35.7
58-89-9*	Lindane and other hexachlorocyclohexane isomers	2, 3	2.5
59-89-2	N-Nitrosomorpholine	2, 3	Nitrosoamine
60-11-7	4-Dimethylaminoazobenzene	2, 3	25.0
60-34-4	Methyl hydrazine	2, 3	67.3
60-35-5	Acetamide	2	2,000.0
60-57-1	Dieldrin	3, 6	18.3
61-82-5	Amitrole	3, 6	14.5
62-53-3	Aniline	2, 3	729.5
62-56-6	Thiourea	3	25.0
62-73-7	Dichlorvos	2, 3, 6	73.6
62-74-8	Sodium fluoroacetate	3, 6	3.6
62-75-9	N-Nitrosodimethylamine	2, 3	Nitrosoamine
63-25-2	Carbaryl	2, 3, 6	365.8
64-19-7	Acetic acid	3	1,825
64-67-5	Diethyl sulfate	2, 3	2.5
67-56-1	Methanol	2	2,000.0
67-66-3	Chloroform	2, 3	25.0
67-72-1	Hexachloroethane	2	2,000.0
68-12-2	N,N-Dimethylformamide	2, 3	2,000.0
71-36-3	n-Butyl alcohol	3	2,000.0
71-43-2	Benzene	2, 3	30.0
71-55-6	Methyl chloroform (1,1,1-Trichloroethane)	2	2,000.0

72-20-8	Endrin	3, 6	7.4
72-33-3	Mestranol	3	Group B Pharmaceutical
72-43-5	Methoxychlor	2	2,000.0
74-83-9	Methyl bromide	2, 3, 6	1,459.1
74-87-3	Methyl chloride	2, 3	2,000.0
74-88-4	Methyl iodide	2, 3	25.0
74-89-5	Methylamine	3	874.6
74-90-8	Hydrogen cyanide	2, 3	443.6
75-00-3	Ethyl chloride (Chloroethane)	2	2,000.0
75-01-4	Vinyl chloride	2, 3	30.0
75-04-7	Ethylamine (Ethanamine)	3	1,314.0
75-05-8	Acetonitrile	2, 3	2,000.0
75-07-0	Acetaldehyde	2, 3	2,000
75-09-2	Methylene chloride	2, 3	2,000.0
75-15-0	Carbon disulfide	2, 3	2,000.0
75-21-8	Ethylene oxide	2, 3	2.5
75-25-2	Bromoform	2	2,000.0
75-31-0	Isopropylamine	3	874.6
75-34-3	1,1-Dichloroethane	2, 3	2,000.0
75-35-4	Vinylidene chloride	2, 3	1,459.1
75-43-4	Hydrochlorofluorocarbon-21 (HCFC-21)	5	2,000.0
75-44-5	Phosgene	2, 3	29.4
75-45-6	Hydrochlorofluorocarbon-22 (HCFC-22, R-22)	5	2,000.0
75-52-5	Nitromethane	3	2,000.0
75-55-8	Propylenimine	2, 3	25.0
75-56-9	Propylene oxide	2, 3	25.0

75-63-8	Halon-1301	5	2,000.0
75-68-3	Hydrochlorofluorocarbon-142b (HCFC-142b, R-142b)	5	2,000.0
75-69-4	Chlorofluorocarbon-11 (CFC-11, R-11)	5	2,000.0
75-71-8	Chlorofluorocarbon-12 (CFC-12, R-12)	5	2,000.0
75-72-9	Chlorofluorocarbon-13 (CFC-13, R-13)	5	2,000.0
75-88-7	Hydrochlorofluorocarbon-133a (HCFC-133a)	5	2,000.0
75-99-0	2,2-Dichloropropionic acid	3, 6	437.3
76-06-2	Chloropicrin (Trichloronitromethane)	3, 6	50.5
76-12-0	Chlorofluorocarbon-112 (CFC-112)	5	2,000.0
76-13-1	Chlorofluorocarbon-113 (CFC-113)	5	2,000.0
76-14-2	Chlorofluorocarbon-114 (CFC-114, R-114)	5	2,000.0
76-15-3	Chlorofluorocarbon-115 (CFC-115, R-115)	5	2,000.0
76-22-2	Camphor (synthetic)	3	874.6
76-44-8	Heptachlor	2, 3, 6	35.7
77-47-4	Hexachlorocyclopentadiene	2, 3, 6	7.4
77-73-6	Dicyclopentadiene	3	2,000.0
77-78-1	Dimethyl sulfate	2, 3	2.5
78-10-4	Ethyl silicate	3	2,000.0
78-30-8	Triorthocresyl phosphate	3	7.4
78-34-2	Dioxathion	3, 6	14.5
78-59-1	Isophorone	2, 3	1,110.1
78-83-1	Isobutyl alcohol	3	2,000.0
78-87-5	Propylene dichloride	2, 3	2,000.0
78-93-3	Methyl ethyl ketone (2-Butanone) (MEK)	2	2,000.0
79-00-5	1,1,2-Trichloroethane	2, 3	2,000.0
79-01-6	Trichloroethylene	2, 3	2,000.0

79-06-1	Acrylamide	2, 3	21.0
79-10-7	Acrylic acid	2, 3	2,000.0
79-11-8	Chloroacetic acid	2	2,000.0
79-24-3	Nitroethane	3	2,000.0
79-34-5	1,1,2,2-Tetrachloroethane	2, 3	510.9
79-41-4	Methacrylic acid	3	2,000.0
79-44-7	Dimethyl carbamoyl chloride	2, 3	25.0
79-46-9	2-Nitropropane	2, 3	25.0
80-62-6	Methyl methacrylate	2, 3	2,000.0
81-81-2	Warfarin	3, 6	7.4
82-68-8	Pentachloronitrobenzene (Quintobenzene) (PCNB)	2	2,000.0
83-26-1	Pindone	3, 6	7.4
83-79-4	Rotenone (commercial)	3, 6	365.8
84-66-2	Diethyl phthalate	3	365.8
84-74-2	Dibutyl phthalate	2, 3, 6	365.8
85-00-7*	Diquat	3, 6	35.7
85-44-9	Phthalic anyhydride	2, 3	437.3
86-50-0	Azinphos-methyl	3, 6	14.5
86-88-4	ANTU	3, 6	21.0
87-68-3	Hexachlorobutadiene	2, 3, 6	9.2
87-86-5	Pentachlorophenol	2, 3	35.7
88-06-2	2,4,6-Trichlorophenol	2	2,000.0
89-72-5	o-sec-Butylphenol	3	2,000.0
90-04-0*	o-Anisidine and o-anisidine hydrochloride	2, 3	25.0
91-20-3	Naphthalene	2, 3	2,000.0

91-22-5	Quinoline	2	2,000.0
91-59-8	2-Naphthylamine	3	2.5
91-94-1	3,3'-Dichlorobenzidine	2, 3	25.0
92-52-4	Biphenyl	2, 3	109.3
92-67-1	4-Aminobiphenyl	2, 3	2.5
92-84-2	Phenothiazine	3, 6	365.8
92-87-5	Benzidine	2, 3	0.2
92-93-3	4-Nitrobiphenyl	2	2,000.0
94-36-0	Benzoyl peroxide	3	365.8
94-75-7	2,4-D, salts and esters	2	2,000.0
95-47-6	o-Xylene	2, 3	2,000.0
95-48-7	o-Cresol	2	2,000.0
95-49-8	o-Chlorotoluene	3	2,000.0
95-50-1	o-Dichlorobenzene	3	2,000.0
95-53-4	o-Toluidine	2, 3	2.5
95-80-7*	2,4-Diaminotoluene	2, 3	25.0
95-95-4	2,4,5-Trichlorophenol	2	2,000.0
96-09-3	Styrene oxide	2	2,000.0
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2, 3	25.0
96-18-4	1,2,3-Trichloropropane	3	2,000.0
96-33-3	Methyl acrylate	3	2,000.0
96-45-7	Ethylene thiourea	2, 3	25.0
98-00-0	Furfuryl alcohol	3	2,000.0
98-01-1	Furfural	3	584.5
98-07-7	Benzotrichloride	2, 3	25.0
98-51-1	p-tert-Butyltoluene	3	2,000.0

98-82-8	Cumene	2, 3	2,000.0
98-83-9	alpha-Methyl styrene	3	2,000.0
98-86-2	Acetophenone	2	2,000.0
98-95-3	Nitrobenzene	2, 3	365.8
99-08-1*	Nitrotoluene, all isomers	3	803.1
100-00-5	p-Nitrochlorobenzene	3	46.6
100-01-6	p-Nitroaniline	3	218.6
1 00-02-7	4-Nitrophenol	2	2,000.0
100-37-8	2-Diethylaminoethanol	3	2,000.0
100-41-4	Ethyl benzene	2, 3	2,000.0
100-42-5	Styrene, monomer	2, 3	2,000.0
100-44-7	Benzyl chloride	2, 3	365.8
100-61-8	N-Methyl aniline	3	145.1
100-63-0	Phenylhydrazine	3	766.1
100-74-3	N-Ethylmorpholine	3	1,677.7
100-75-4	N-Nitrosopiperidine	3	Nitrosoamine
101-14-4	4,4'-Methylene bis(2-chloroaniline) (MOCA)	2, 3	25.0
101-68-8	Methylene bisphenyl isocyanate (MDI)	2, 3	8.8
101-77-9*	4,4'-Methylenedianiline (and dihydrochloride)	2, 3	25.0
101-84-8	Phenyl ether vapor	3	510.9
102-81-8	2-N-Dibutylaminoethanol	3	1,022
105-60-2	Caprolactam vapor	2, 3	1,459.1
106-35-4	Ethyl butyl ketone	3	2,000.0
106-42-3	p-Xylene	2, 3	2,000.0
106-44-5	p-Cresol	2	2,000.0
106-46-7	p-Dichlorobenzene	2, 3	2,000

106-50-3	p-Phenylenediamine	2, 3	7.4
106-51-4	Quinone	2, 3, 6	29.4
106-87-6	Vinyl cyclohexene dioxide	3	1,314.0
106-88-7	1,2-Epoxybutane (1,2-Butylene oxide)	2	2,000.0
106-89-8	Epichlorohydrin	2, 3	30.0
106-93-4	1,2-Dibromoethane (EDB)	2, 3	25.0
106-99-0	1,3-Butadiene	2, 3	2,000.0
107-02-8	Acrolein	2, 3	18.3
107-05-1	Allyl chloride	2, 3	218.6
107-06-2	1,2-Dichloroethane (EDC)	2, 3	2.5
107-07-3	Ethylene chlorohydrin	3	132.5
107-13-1	Acrylonitrile	2, 3	2.5
107-15-3	Ethylenediamine	3	1,824.9
107-18-6	Allyl alcohol	3	365.8
107-19-7	Propargyl alcohol	3	145.1
107-21-1	Ethylene glycol vapor	2, 3	2,000.0
107-30-2	Chloromethyl methyl ether (CMME)	2, 3	0.01
107-31-3	Methyl formate	3	2,000.0
107-41-5	Hexylene glycol	3	2,000.0
107-49-3	TEPP	3, 6	3.6
108-05-4	Vinyl acetate	2, 3	2,000.0
108-10-1	Methyl isobutyl ketone	2, 3	2,000.0
108-11-2	Methyl isobutyl carbinol	3	2,000.0
108-18-9	Diisopropylamine	3	1,459
108-24-7	Acetic anhydride	3	887
108-31-6	Maleic anhydride	2, 3	73.6

108-38-3	m-Xylene	2, 3	2,000.0
108-39-4	m-Cresol	2	2,000.0
108-44-1	m-Toluidine	3	656
108-46-3	Resorcinol	3	2,000.0
108-83-8	Diisobutyl ketone	3	2,000.0
108-84-9	sec-Hexyl acetate	3	2,000.0
108-88-3	Toluene (Toluol)	2, 3	2,000.0
108-90-7	Chlorobenzene (Monochlorobenzene)	2, 3	2,000.0
108-91-8	Cyclohexylamine	3	2,000.0
108-93-0	Cyclohexanol	3	2,000.0
108-94-1	Cyclohexanone	3	2,000.0
108-95-2	Phenol	2, 3	1,385
108-98-5	Phenyl mercaptan	3	145.1
109-59-1	Isopropoxyethanol	3	2,000.0
109-73-9	n-Butylamine	3	666.46
109-86-4	2-Methoxyethanol (EGME)	3	1,166.8
109-89-7	Diethylamine	3	2,000.0
109-99-9	Tetrahydrofuran	3	2,000.0
110-12-3	Methyl isoamyl ketone	3	2,000.0
110-43-0	Methyl n-amyl ketone	3	2,000.0
110-49-6	2-Methoxyethyl acetate (EGMEA)	3	1,751.3
110-54-3	n-Hexane	2, 3	2,000.0
110-62-3	n-Valeraldehyde	3	2,000.0
110-80-5	2-Ethoxyethanol (EGEE)	3	655.9
110-86-1	Pyridine	3	1,095.4
110-91-8	Morpholine	3	2,000.0
111-15-9	2-Ethoxyethyl acetate (EGEEA)	3	1,969.9

111-40-0	Diethylene triamine	3	292.2
111-42-2	Diethanolamine	2, 3	1,095
111-44-4	Dichloroethyl ether	2, 3	2,000.0
111-76-2	2-Butoxyethanol (EGBE)	3	2,000.0
114-26-1	Propoxur	2, 3, 6	35.7
115-29-7	Endosulfan	3, 6	7.4
115-86-6	Triphenyl phosphate	3	218.6
115-90-2	Fensulfothion	3, 6	7.4
117-79-3	2-Aminoanthraquinone	3	25.0
117-81-7	Di(2-ethylhexyl) phthalate (DEHP)	2, 3	25.0
118-52-5	1,3-Dichloro-5,5-dimethyl hydantoin	3	14.5
118-74-1	Hexachlorobenzene (HCB)	2, 3	2.5
119-90-4	3,3'-Dimethoxybenzidine (o-Dianisidine)	2, 3	25.0
119-93-7	3,3'-Dimethylbenzidine (o-Tolidine)	2, 3	25.0
120-71-8	p-Cresidine	3	25.0
120-80-9	Catechol (Pyrocatechol)	2, 3	1,459
120-82-1	1,2,4-Trichlorobenzene	2, 3	1,774.4
121-44-8	Triethylamine	2	2,000.0
121-69-7	Dimethylaniline (N,N-Dimethylaniline)	2, 3	1,825
122-60-1	Phenyl glycidyl ether (PGE)	3	437.3
122-66-7	Hydrazobenzene	2, 3	25.0
123-31-9	Hydroquinone	2, 3	145.1
123-38-6	Propionaldehyde	2	2,000.0
123-42-2	Diacetone alcohol	3	2,000.0
123-73-9*	Crotonaldehyde	3	588.7
123-91-1	1,4-Dioxane	2, 3	25.0

124-40-3	Dimethylamine	3	1,314
124-73-2	Halon-2402	5	2,000.0
126-73-8	Tributyl phosphate	3	182.9
126-98-7	Methylacrylonitrile	3	218.6
126-99-8	beta-Chloroprene	2, 3	2,000.0
127-18-4	Perchloroethylene	2, 3	2,000.0
127-19-5	Dimethyl acetamide	3	2,000.0
131-11-3	Dimethylphthalate	2, 3	365.8
132-64-9	Dibenzofurans	2	2,000.0
133-06-2	Captan	2, 3, 6	365.8
133-90-4	Chloramben	2	2,000.0
136-40-3*	Phenazopyridine and phenazopyridine hydrochloride	3	Group B Pharmaceuti-cal
137-05-3	Methyl 2-cyanoacrylate	3	584.5
137-26-8	Thiram	3, 6	365.8
138-22-7	n-Butyl lactate	3	1,824.9
140-88-5	Ethyl acrylate	2, 3	1,459.1
141-32-2	n-Butyl acrylate	3	2,000.0
141-43-5	Ethanolamine	3	584.5
141-66-2	Dicrotophos	3, 6	18.3
141-79-7	Mesityl oxide	3	2,000.0
143-33-9*	Cyanides, (inorganics), as CN	2, 3	365.8
144-62-7	Oxalic acid	3	73.6
148-82-3	Melphalan	3	Group A Pharmaceuti-cal
150-76-5	4-Methoxyphenol	3	365.8
151-56-4	Ethylenimine	2, 3	73.6

154-93-8	Bischloroethyl nitrosourea	3	Group B Pharmaceuti-cal
156-10-5	p-Nitrosodiphenylamine	3	Nitrosoamine
156-62-7	Calcium cyanamide	2, 3	35.7
189-55-9	Dibenzo(a,i)pyrene	2, 3	Polycyclic Organic Matter
189-64-0	Dibenzo(a,h)pyrene	2, 3	Polycyclic Organic Matter
193-39-5	Indeno(1,2,3-cd)pyrene	2, 3	Polycyclic Organic Matter
194-59-2	7H-Dibenzo(c,g)carbazole	2, 3	Polycyclic Organic Matter
205-99-2	Benzo(b)fluoranthene	2, 3	Polycyclic Organic Matter
224-42-0	Dibenz(a,j)acridine	2, 3	Polycyclic Organic Matter
226-36-8	Dibenz(a,h)acridine	2, 3	Polycyclic Organic Matter
298-00-0	Methyl parathion	3, 6	14.5
298-02-2	Phorate	3, 6	3.6
298-04-4	Disulfoton	3, 6	7.4
299-86-5	Crufomate	3, 6	365.8
300-76-5	Naled	3, 6	218.6
302-01-2*	Hydrazine and hydrazine sulfate	2, 3	25.0
305-03-3	Chlorambucil	3	Group A Pharmaceuti-cal
306-83-2*	Hydrochlorofluorocarbon-123 (HCFC-123, R-123)	5	2,000.0
309-00-2	Aldrin	3, 6	18.3
314-40-9	Bromacil	3, 6	729.5
333-41-5	Diazinon	3, 6	7.4
334-88-3	Diazomethane	2, 3	29.4
353-50-4	Carbonyl fluoride	3	365.8

353-59-3	Halon-1211	5	2,000.0
366-70-1*	Procarbazine and procarbazine hydrochloride	3	Group B Pharmaceuti-cal
420-04-2	Cyanamide	3	145.1
422-56-0	Hydrochlorofluorocarbon-225ca (HCFC-225ca)	5	2,000.0
422-78-6	Chlorofluorocarbon-211 (CFC-211, R-211)	5	2,000.0
422-86-6	Chlorofluorocarbon-217 (CFC-217, R-217)	5	2,000.0
434-07-1	Oxymetholone	3	Group B Pharmaceuti-cal
446-86-6	Azathioprine	3	Group A Pharmaceuti-cal
460-19-5	Cyanogen	3	1,459.1
463-51-4	Ketene	3	65.2
463-58-1	Carbonyl sulfide	2	2,000.0
494-03-1	N,N-Bis (2-chloroethyl)-2-naphthylamine (Chloronaphazine)	3	Group A Pharmaceuti-cal
505-60-2	Mustard gas	3	Group A Pharmaceuti-cal
506-77-4	Cyanogen chloride	3	27.3
507-55-1	Hydrochlorofluorocarbon-225cb (HCFC-225cb)	5	2,000.0
510-15-6	Chlorobenzilate	2	2,000.0
528-29-0*	Dinitrobenzene, all isomers	3	73.6
532-27-4	2-Chloroacetophenone	2	2,000.0
534-52-1	Dinitro-o-cresol	2, 3, 6	14.5
540-59-0	1,2-Dichloroethylene	3	2,000.0
540-84-1	2,2,4-Trimethylpentane	2	2,000.0
541-85-5	Ethyl amyl ketone	3	2,000.0
542-75-6	Dichloropropene	2, 3, 6	365.8

542-88-1	Bis(chloromethyl) ether (BCME) and technical grade	2, 3	0.01
542-92-7	Cyclopentadiene	3	2,000.0
552-30-7	Trimellitic anhydride	3	2.9
556-52-5	Glycidol	3	2,000.0
558-13-4	Carbon tetrabromide	3	103.0
563-12-2	Ethion	3, 6	29.4
583-60-8	o-Methylcyclohexanone	3	2,000.0
584-84-9	Toluene-2,4-diisocyanate (TDI)	2, 3	2.9
591-78-6	Methyl n-butyl ketone	3	1,459.1
593-60-2	Vinyl bromide	2	2,000.0
593-70-4	Hydrochlorofluorocarbon-31 (HCFC-31)	5	2,000.0
594-42-3	Perchloromethyl mercaptan	3	58.9
594-72-9	1,1-Dichloro-1-nitroethane	3	729.5
600-25-9	1-Chloro-1-nitropropane	3, 6	729.5
621-64-7	N-Nitrosodi-n-propylamine	3	Nitrosoamine
624-83-9	Methyl isocyanate	2, 3	3.6
630-08-0	Carbon monoxide	1	2,000.0
661-97-2	Chlorofluorocarbon-216 (CFC-216, R-216)	5	2,000.0
680-31-9	Hexamethyl phosphoramide	2, 3	25.0
684-93-5	N-Nitroso-N-methylurea	2, 3	Nitrosoamine
759-73-9	N-Nitroso-N-ethylurea	3	Nitrosoamine
768-52-5	N-Isopropylaniline	3	729.5
822-06-0	Hexamethylene-1,6-diisocyanate	2	2,000.0
924-16-3	N-Nitrosodi-n-butylamine	3	Nitrosoamine
930-55-2	N-Nitrosopyrrolidine	3	Nitrosoamine
944-22-9	Fonofos	3, 6	7.4

954-56-3	Chlorofluorocarbon-111 (CFC-111)	5	2,000.0
999-61-1	2-Hydroxypropyl acrylate	3	218.6
1116-54-7	N-Nitrosodiethanolamine	3	Nitrosoamine
1120-71-4	1,3-Propane sultone	2, 3	25.0
1189-85-1	tert-Butyl chromate, as Cr	2, 3	0.01
1300-73-8	Xylidine, mixed isomers	3	182
1303-96-4*	Borates, tetra, sodium salts, decahydrate	3	365.8
1303-96-4*	Borates, tetra, sodium salts, pentahydrate	3	73.6
1305-62-0	Calcium hydroxide	3	365.8
1305-78-8	Calcium oxide	3	145.1
1310-58-3	Potassium hydroxide	3	88.3
1310-73-2	Sodium hydroxide	3	88.3
1314-80-3	Phosphorus pentasulfide	3	73.6
1319-77-3	Cresol, all isomers	2, 3	1,604
1321-64-8	Pentachloronaphthalene	3	35.7
1321-65-9	Trichloronaphthalene	3	365.8
1321-74-0*	Divinyl benzene	3	2,000.0
1330-20-7	Xylene, mixed isomers (Xylol)	2, 3	2,000.0
1332-21-4*	Asbestos, all forms	2, 3	2.5
1333-86-4	Carbon black	3	254.4
1335-87-1	Hexachloronaphthalene	3	14.5
1335-88-2	Tetrachloronaphthalene	3	145.1
1336-36-3	Polychlorinated biphenyls (PCB)	2, 3	0.01
1338-23-4	Methyl ethyl ketone peroxide	3	67.3
1402-68-2	Aflatoxins	3	2.5
1477-55-0	m-Xylene-alpha,alpha'-diamine	3	4.4

1563-66-2	Carbofuran	3, 6	7.4
1582-09-8	Trifluralin	2	2,000.0
1634-04-4	Methyl tert-butyl ether	2	2,000.0
1649-08-7	Hydrochlorofluorocarbon-132b (HCFC-132b)	5	2,000.0
1717-00-6	Hydrochlorofluorocarbon-141b (HCFC-141b, R-141b)	5	2,000.0
1746-01-6	2,3,7,8-Tetrachlorodibenzo-p-dioxin	2, 3	0.00001
1910-42-5*	Paraquat (respirable sizes)	3, 6	7.4
1912-24-9	Atrazine	3, 6	365.8
2039-87-4	o-Chlorostyrene	3	2,000.0
2104-64-5	EPN	3, 6	35.7
2234-13-1	Octachloronaphthalene	3	7.4
2238-07-5	Diglycidyl ether (DGE)	3	35.7
2354-06-5	Chlorofluorocarbon-213 (CFC-213, R-213)	5	2,000.0
2425-06-1	Captafol	3, 6	7.4
2426-08-6	n-Butyl glycidyl ether (BGE)	3	2,000.0
2699-79-8	Sulfuryl fluoride	3, 6	1459.1
2921-88-2	Chlorpyrifos	3, 6	14.5
3182-26-1	Chlorofluorocarbon-212 (CFC-212, R-212)	5	2,000.0
3547-04-4	DDE	2	2,000.0
3689-24-5	Sulfotep (TEDP)	3, 6	14.5
4016-14-2	Isopropyl glycidyl ether	3	2,000.0
4098-71-9	Isophorone diisocyanate	3	6.5
4259-43-2	Chlorofluorocarbon-215 (CFC-215, R-215)	5	2,000.0
4342-03-4	Dacarbazine	3	Group B Pharmaceuti-cal
4549-40-0	N-Nitrosomethylvinylamine	3	Nitrosoamine
5124-30-1	Methylene bis(4-cyclohexylisocyanate)	3	3.9

6923-22-4	Monocrotophos	3, 6	18.3
7429-90-5*	Aluminum alkyls	3	145.1
7429-90-5*	Aluminum pyro powders	3	365.8
7429-90-5*	Aluminum soluble salts	3	145.1
7439-92-1*	Lead compounds	2	2,000.0
7439-96-5*	Manganese, as Mn, dust and compounds	2, 3	222.9
7439-97-6*	Mercury alkyl compounds, as Hg	2, 3	0.7
7439-97-6*	Mercury, all forms except alkyl, vapor, as Hg	2, 3	3.6
7439-97-6*	Mercury aryl & inorganic compounds, as Hg	2, 3	7.4
7439-98-7*	Molybdenum, as Mo, soluble compounds	3	365.8
7440-02-0*	Nickel compounds other than nickel subsulfide, as Ni	2, 3	25.0
7440-06-4	Platinum (metal)	3	73.6
7440-06-4*	Platinum, soluble salts, as Pt	3	0.15
7440-16-6	Rhodium (metal)	3	73.6
7440-16-6*	Rhodium, soluble compounds, as Rh	3	0.74
7440-28-0*	Thallium, soluble compounds, as Tl	3	7.4
7440-31-5	Tin (metal)	3	145.1
7440-31-5*	Tin organic compounds, as Sn	3	7.4
7440-31-5*	Tin oxide & inorganic compounds, except SnH_4, as Sn	3	145.1
7440-33-7*	Tungsten - as W, insoluble compounds	3	365.8
7440-33-7*	Tungsten - as W, soluble compounds	3	73.6
7440-36-0*	Antimony & compounds, as Sb	2, 3	35.7
7440-38-2*	Arsenic and inorganic compounds, as As	2, 3	2.5
7440-39-3*	Barium, soluble compounds, as Ba	3	35.7
7440-41-7*	Beryllium and beryllium compounds, as Be	2, 3	2.5
7440-43-9*	Cadmium and cadmium compounds, as Cd	2, 3	2.5

7440-47-3*	Chromium (II) compounds, as Cr	2, 3	35.7
7440-47-3*	Chromium (III) compounds, as Cr	2, 3	35.7
7440-47-3*	Chromium (VI) compounds, as Cr, water insoluble	2, 3	0.2
7440-47-3*	Chromium (VI) compounds, as Cr, water soluble	2, 3	3.6
7440-47-3	Chromium (metal)		35.7
7440-48-4	Cobalt, as Co, metal, dust	2, 3	3.6
7440-50-8	Copper, dust & mists, as Cu	3	73.6
7440-61-1*	Uranium (natural), soluble & insoluble compounds, as U	3	14.5
7440-67-7*	Zirconium and compounds, as Zr	3	365.8
7440-74-6	Indium	3	7.4
7446-09-5	Sulfur dioxide	1, 4	2,000.0
7550-45-0	Titanium tetrachloride	2	2,000.0
7553-56-2	Iodine	3	44.2
7631-90-5	Sodium bisulfite	3	365.8
7637-07-2	Boron trifluoride	3	132.5
7647-01-0	Hydrogen chloride	2, 3, 4	311.2
7664-38-2	Phosphoric acid	3	73.6
7664-39-3	Hydrogen fluoride	2, 3	111.4
7664-41-7	Ammonia	3	1,314
7664-93-9	Sulfuric acid	3	73.6
7697-37-2	Nitric acid	3	365.8
7719-09-7	Thionyl chloride	3	222.9
7719-12-2	Phosphorus trichloride	3	109.3
7722-84-1	Hydrogen peroxide	3	109.3
7723-14-0	Phosphorus (yellow)	2, 3	7.4
7726-95-6	Bromine	3	50.5

7782-41-4	Fluorine	3	145.1
7782-49-2*	Selenium and compounds, as Se	2, 3	14.5
7782-50-5	Chlorine	2, 3	218.6
7782-65-2	Germanium tetrahydride	3	44.2
7783-06-4	Hydrogen sulfide	3	1,021.8
7783-60-0	Sulfur tetrafluoride	3	17.7
7784-42-1	Arsine	2, 3	14.5
7786-34-7	Mevinphos (Phosdrin)	3, 6	7.4
7789-30-2	Bromine pentafluoride	3	50.5
7790-91-2	Chlorine trifluoride	3	17.7
7803-51-2	Phosphine	2, 3	29.4
7803-52-3	Stibine (Antimony hydride)	3, 6	35.7
7803-62-5	Silicon tetrahydride (Silane)	3	510.9
8001-35-2	Chlorinated camphene	2, 3, 6	35.7
8003-34-7	Pyrethrum	3, 6	365.8
8022-00-2	Methyl demeton	3, 6	35.7
8052-41-3	Stoddard solvent (Mineral spirits)	3	2,000.0
8065-48-3	Demeton	3, 6	7.4
9004-66-4	Iron dextran complex	3	Group B Pharmaceuti-cal
10025-67-9	Sulfur monochloride	3	267.0
10025-87-3	Phosphorus oxychloride	3	44.2
10026-13-8	Phosphorus pentachloride	3	73.6
10035-10-6	Hydrogen bromide	3	443.6
10049-04-4	Chlorine dioxide	3	21.0
10294-33-4	Boron tribromide	3	444
12035-72-2	Nickel subsulfide	2, 3	2.5

13010-47-4	1-(2-Chloroethyl)-3-cyclohexyl-1-nitrosourea (CCNU)	3	Group B Pharmaceuti-cal
13121-70-5	Cyhexatin	3, 6	365.8
13256-22-9	N-Nitrososarcosine	3	Nitrosoamine
13494-80-9*	Tellurium and compounds, as Te	3	7.4
14977-61-8	Chromyl chloride, as Cr	2, 3	0.01
16219-75-3	Ethylidene norbornene	3	1,110.1
16543-55-8	N'-Nitrosonornicotine	3	Nitrosoamine
16752-77-5	Methomyl	3, 6	182.9
17804-35-2	Benomyl	3, 6	729.5
18883-66-4	Streptozotocin	3	Group B Pharmaceuti-cal
19287-45-7	Diborane	3	7.4
21351-79-1	Cesium hydroxide	3	145
23214-92-8	Adriamycin	3	Group B Pharmaceuti-cal
25013-15-4	Vinyl toluene	3	2,000.0
25321-14-6*	Dinitrotoluene	2, 3	109.3
25551-13-7	Trimethyl benzene, mixed isomers	3	2,000.0
25639-42-3	Methylcyclohexanol	3	2,000.0
26140-60-3	Terphenyls	3	222.9
26952-21-6	Isooctyl alcohol	3	2,000.0
29191-52-4	Anisidine	2, 3	25
29255-31-0	Chlorofluorocarbon-214 (CFC-214, R-214)	5	2,000.0
39156-41-7	2,4-Diaminoanisole sulfate	3	25.0
55720-99-5	Chlorinated diphenyl oxide	3	35.7
61788-32-7	Hydrogenated terphenyls	3	365.8

63938-10-3*	Hydrochlorofluorocarbon-124 (HCFC-124, R-124)	5	2,000.0

These footnotes are for informational purposes only and may change as the regulations change:

1. Criteria Pollutant
2. Federal Hazardous Air Pollutant
3. State Hazardous Air Pollutant
4. Federal New Source Performance Standard
5. Stratospheric Ozone Depleting Substance
6. Pesticides, Rodenticides, Insecticides, Herbicides and Fungicides
7. The Chemical Abstract Service or CAS numbers refer to the unique chemical abstracts service registry number assigned to a specific chemical, isomer or mixture of chemicals or isomers and recorded in the CAS chemical registry system by the Chemical Abstracts Service, PO Box 3012, Columbus OH 42310, phone 1-800-848-5638 ext.2308.
8. Glycol ethers means any compound which can be described by the following chemical formula: $R(OCH_2CH_2)_n\text{-}OR'$ where: n = 1,2 or 3
   R = alkyl C7 or less
   or R = phenyl or alkyl substituted phenyl
   R' = H or alkyl C7 or less or ester, sulfate, phosphate, nitrate, sulfonate
   (i.e., any group that will readily come off)

* Indicates contaminants for which multiple CAS numbers may apply. For contaminants listed as a metal and its compounds, the given CAS number refers to the metal.

** For groups of air contaminants, the sum of the maximum theoretical emissions of all air contaminants in the group is used for comparison with the group inclusion level in Table 2. Each air contaminant in the group is listed alphabetically within the table.

***Note**: An emissions unit, operation or activity is considered to be insignificant if its emissions are 10 percent of the levels in this table.*

APPENDIX F

MAXIMUM THEORETICAL EMISSIONS

APPENDIX F
MAXIMUM THEORETICAL EMISSIONS

Maximum Theoretical Emissions are used to determine whether a facility is required to get a permit and to determine which emissions units, operations, activities, and air contaminants are significant for inclusion in the permit application.

Maximum Theoretical Emissions means the quantity of air contaminants that theoretically could be emitted by a stationary source without control devices based on the design capacity or maximum production capacity of the source. When determining annual maximum theoretical emissions (MTE), an emissions unit, operation or activity shall be presumed to operate 8,760 hours per year (24 hours per day, 365 days per year) unless its physical design precludes 8,760 hours of operation per year. If your facility's physical design restricts the number of hours you may operate, you should take into account this restriction when calculating your annual MTE. Take into account realistic operating conditions in determining emissions. In determining the MTE of volatile organic compounds (VOCs) for an emissions unit, operation, or activity, include in the design capacity or maximum production capacity the use of raw materials, coatings and inks with the highest VOC content.

Hourly Maximum Theoretical Emissions -- Boilers, Asphalt Plants…
For emissions units that have emissions factors available such as boilers, asphalt plants, fuel-burning equipment, etc., you can use the following basic equation to calculate your MTE:

(emissions factor) x (maximum hourly production rate) = lb/hr MTE

Emissions factors can be found in *AP-42* (see Appendix D) or from stack test results.

Hourly Maximum Theoretical Emissions -- VOC Emissions Units
In determining the hourly MTE of volatile organic compounds (VOCs) for an emissions unit, operation or activity, you need to look at both the VOC content and the maximum hourly usage rate of raw materials, coatings and inks used. The material with the highest VOC content will not necessarily correspond to the MTE of VOCs for a particular emissions unit, operation or activity. A lower VOC content material with a higher maximum hourly usage rate could actually determine the MTE. For VOC emissions units, such as coating or printing operations, the hourly MTE is the product of the VOC content of a material times the maximum hourly usage rate of that material:

(VOC content of worst case material) x (maximum hourly usage rate of that material) = lb/hr MTE

Here are two ways to determine VOC content:

1. (Material density) x (weight % VOC) = VOC content
   OR
2. (Solvent density not including water) x (volume % VOC) = VOC content

Example 1: Acme Coaters, Inc. operates a metal parts spray painting booth. They use the following paints:

Paint	VOC content	Maximum hourly usage rate
A	5.0 lbs VOC/gallon	2.0 gallons/hour
B	4.0 lbs VOC/gallon	3.0 gallons/hour

For this process paint B is the worst case material and the hourly MTE is calculated as follows:

(4.0 lbs VOC/gallon) x (3.0 gallons/hour) = **12.0 lbs VOC/hour MTE**

Note that if paint A was considered to be the worst case material the resulting MTE would not truly represent worst case as follows:

(5.0 lbs VOC/gallon) x (2.0 gallons/hour) = 10.0 lbs VOC/hour (This is not the MTE.)

Hourly Maximum Theoretical Emissions - Hazardous Air Contaminants

The determination of hourly MTE for hazardous air contaminants is much the same as the determination for VOCs. It is generally the product of the hazardous air contaminant content of a raw material times the maximum hourly usage rate of that material.

(haz. air contaminant content of worst case material) x (max. hourly usage rate of that material) = lb/hr MTE

However, if a hazardous air contaminant is created during the operation of the process, you must add the amount of the hazardous air contaminant created to the MTE. Similarly if a hazardous air contaminant is destroyed during the operation of the process, you must subtract the amount of the hazardous air contaminant destroyed from the MTE.

Just as in determining the hourly MTE for VOCs, the material with the highest hazardous air contaminant content will not necessarily correspond to the MTE of the hazardous air contaminant for a particular emissions unit, operation or activity. A lower hazardous air contaminant content material with a higher maximum hourly usage rate could actually determine the MTE.

Example 2: Circle Corp. operates a process that uses a raw material which contains the following hazardous air contaminants:

Contaminant	Hazardous air contaminant content of raw material
benzene	2 percent by weight
formaldehyde	1 percent by weight

The maximum usage rate of the raw material is 1000 pounds per hour. During the operation of the process 25 percent of the benzene is converted to formaldehyde, carbon monoxide and water. For every pound of benzene converted, 0.8 pounds of formaldehyde are formed. No other hazardous air contaminants are created or destroyed in this process. The MTEs for benzene and formaldehyde are

calculated as follows:

Benzene:

(benzene introduced to process) - (benzene destroyed during process) = lb/hr MTE

(benzene introduced to process) = (0.02 lbs benzene/lb raw material) x (1000 lbs raw material/hr)
= 20 lbs benzene introduced

(benzene destroyed during process) = (0.25) x (benzene introduced to process)
= (0.25) x (20 lbs benzene introduced)
= 5 lbs benzene destroyed

(20 lbs benzene introduced) - (5 lbs benzene destroyed) = **15 lbs benzene/hr MTE**

Formaldehyde (form.):

(form. introduced to process) + (form. created during process) = lb form./hr MTE

(form. introduced to process) = (0.01 lbs form./lb raw material) x (1000 lbs raw material/hr)
= 10 lbs form. introduced

(form. created) = (0.8 lb form. created/1 lb benzene destroyed) x (benzene destroyed)
= (0.8 lb form. created/1 lb benzene destroyed) x (5 lbs benzene destroyed)
= 4 lbs form. created

(10 lbs form. introduced) + (4 lbs form. created) = **14 lbs formaldehyde/hr MTE**

Annual Maximum Theoretical Emissions
On some forms you will need to report your annual MTE. When determining annual MTE, an emissions unit, operation or activity shall be presumed to operate 8,760 hours per year (24 hours per day, 365 days per year) unless its physical design precludes 8,760 hours of operation per year. If your facility's physical design restricts the number of hours you may operate, you should take into account this restriction when calculating your annual MTE. Take into account realistic operating conditions in determining emissions. If you do not have any physical restrictions on your operating hours, you can use the following equation:

(lb/hr MTE) x (24 hrs/day) x (365 days/year) x (1 ton/2000 lbs) = tons/year MTE

If you do have physical restrictions on your operating hours, you can use the following equation:

(lb/hr MTE) x (maximum operating hours possible/year) x (1 ton/2000 lbs) = tons/year MTE

Example 3: XYZ Company has a boiler to provide process steam at their plant.

Emissions Unit:	A 90 million BTU per hour tangential fired boiler
Maximum Rated Capacity:	90 million BTU per hour
Fuel:	#5 fuel oil
Heating Value:	148,000 BTU per gallon
Maximum Sulfur Content:	2.0% (by weight)
Control Device:	Baghouse with a particulate matter control efficiency of 99.5%

XYZ Co. uses *AP-42* to find these emission factors for tangentially fired boilers burning #5 fuel oil:

Particulate Matter:	10.0 pounds per 1000 gallons oil burned (lbs/1000 gal)
Sulfur Dioxide:	(159.3 lbs/1000 gal) x (percent sulfur by weight)
Nitrogen Oxides:	42.0 lbs/1000 gal
Carbon Monoxide:	5.0 lbs/1000 gal
Volatile Organic Compounds:	0.76 lbs/1000 gal

Using this information, here is how XYZ Co. calculates their hourly MTE of particulate matter for this boiler:

(10.0 lbs/1000 gal) x (1 gal/148,000 BTU) x (90 x 10^6 BTU/hr) = **6.1** lbs particulate matter/hour

To calculate the annual MTE of particulate matter for this boiler, XYZ Co. must assume the boiler is fired at maximum capacity at all times, and the physical design of the boiler does not preclude the number of hours the boiler can operate. Here are their calculations:

(**6.1** lbs/hr) x (24 hrs/day) x (365 days/year) x (1 ton/2000 lbs) = 26.7 tons particulate matter/year

Note: The particulate matter control efficiency of 99.5% for the baghouse was not taken into account when calculating the MTE because the definition of MTE is the "...quantity of air contaminants that theoretically could be emitted by a stationary source *without control devices* ..."

Example 4: Fact Inc. has a thin film evaporator that can process 500 gallons of solvent per hour. The processed solvent is fed to a 5,000 gallon tank for storage. This 5,000 gallon tank can only be unloaded at a rate of 250 gallons per hour due to the pump capacity. The processed solvent is collected in a primary condenser which has a collection efficiency of 99.5%. This primary condenser is considered to be part of the process because it is product collection equipment. The emissions that are exhausted from the primary condenser are controlled by a sparge tank with a control efficiency of 85%. The following solvents are processed by the thin film evaporator:

Solvent	Density (pounds per gallon)
Acetone	6.59
Heptane	5.81
Hexane	5.61
Toluene	7.26

Fact Inc. uses toluene as the worst case solvent processed in the thin film evaporator to calculate the hourly MTE:

(500 gals/hour) x (7.26 lbs/gal) x (1 - 0.995 product collection) = 18.15 lbs of VOC/hour

When calculating the annual MTE, Fact Inc. must take into account several restrictions on operating hours. First they calculate the time it takes to fill up the 5,000 gallon storage tank when the thin film evaporator is running at a maximum processing rate of 500 gallons per hour:

(5,000 gallon tank) x (1 hour/500 gals) = 10 hours to load the storage tan

Fact Inc. then calculates the time it takes to unload the 5,000 gallon storage tank once it is full while unloading at the maximum rate of 250 gallons per hour:

(5,000 gallon tank) x (1 hour/250 gals) = 20 hours to unload the storage tank

Therefore, tank unloading limits the number of hours the evaporator can operate. So in a 20 hour period the thin film evaporator can only run a maximum of 10 hours. This limits the maximum number of hours the thin film evaporator can operate during a year as follows:

(10 hours of operation/20 hour period) x (24 hours/day) x (365 days/year) =
4,380 hours maximum per year that the thin film evaporator can operate

(**18.15** lbs/hour) x (**4,380** hours/year) x (1 ton/2000 lbs) = 39.7 tons of VOC/year

Note: The volatile organic compound (VOC) control efficiency of 85% for the sparge tank was not taken into account when calculating the MTE because the definition of MTE is the "...quantity of air contaminants that theoretically could be emitted by a stationary source *without control devices* ..."

Annual Maximum Theoretical Emissions - VOCs and Hazardous Air Contaminants
In determining the MTE of VOCs or hazardous air contaminants for an emissions unit, operation or activity, include in the design capacity or maximum production capacity the use of raw materials, coatings and inks with the highest VOC content. However, in considering the use of these materials, take into account realistic operating conditions. There is no single method for doing this. The maximum production capacity should reflect the absolute maximum amount of materials that an emissions unit, operation or activity could use in any one year for the duration of the permit. The following example shows two methods that could be used to determine maximum production capacity:

Example 5: Printers, Inc. operates a printing press which normally uses ink N with the following specifications:

VOC content:	2.0 lbs VOC/gallon
Methyl isobutyl ketone (MIBK) content:	0.5 lbs MIBK/gallon
Maximum hourly ink use:	2.0 gallons/hour

No other hazardous air contaminants are contained in the ink.

The absolute maximum amount of ink N used in any year is 8000 gallons.

Printers, Inc. uses a limited amount of another ink, ink S, for a "Forth of July Specialty Product". That ink has the following specifications:

VOC content:	2.8 lbs VOC/gallon
MIBK content:	2.8 lbs MIBK/gallon
Maximum hourly ink use:	2.0 gallons/hour

No other hazardous air contaminants are contained in the ink.

They never use more than 25.0 gallons of ink S in any year.

Due to clean-up and set-up time, the press could only operate a maximum of 60 percent of the time during any year.

Method 1 for determining annual MTE.

Determine a weighted average ink VOC and MIBK content:

Ave. VOC content = [(VOC from ink N/yr) + (VOC from ink S/yr)]/(Total annual ink use)

(VOC from ink N/yr) = (8000 gal ink N/yr) x (2.0 lbs VOC/gal) = 16,000 lb VOC ink N/yr
(VOC from ink S/yr) = (25 gal ink S/yr) x (2.8 lbs VOC/gal) = 70 lb VOC ink S/yr
(Total annual ink use) = (8000 gal ink N/yr) + (25 gal ink S/yr) = 8025 gal ink/yr

Ave. VOC content = [(16,000 lb VOC ink N/yr) + (70 lb VOC ink S/yr)]/(8025 gal ink/yr)
= 2.0025 lbs VOC/gal

Ave. MIBK content = [(MIBK from ink N/yr) + (MIBK from ink S/yr)]/(Total annual ink use)

(MIBK from ink N/yr) = (8000 gal ink N/yr) x (0.5 lbs MIBK/gal) = 4000 lb MIBK ink N/yr
(MIBK from ink S/yr) = (25 gal ink S/yr) x (2.8 lbs MIBK/gal) = 70 lb MIBK ink S/yr
(Total annual ink use) = (8000 gal ink N/yr) + (25 gal ink S/yr) = 8025 gal ink/yr

Ave. MIBK content = [(4000 lb MIBK ink N/yr) + (70 lb MIBK ink S/yr)]/(8025 gal ink/yr)
= 0.507 lbs MIBK/gal

Calculating the MTE for VOC:

(Maximum hourly ink use) x (Ave. VOC content) x (Maximum hours of operation) x (1 ton/2000 lbs)
= ton VOC/yr MTE

(Maximum hourly ink use) = 2.0 gallons/hour (same for both inks)
(Maximum hours of operation) = (0.60) x (24 hr/day) x (365 days/yr)
= 5256 hrs/yr

(2.0 gals/hr) x (2.0025 lbs/gal) x (5256 hrs/yr) x (1 ton/2000 lbs) = **10.5 tons VOC/yr MTE**

Calculating the MTE for MIBK:

(Maximum hourly ink use) x (Ave. MIBK content) x (Max. hours of operation) x (1 ton/2000 lbs)
= ton MIBK/yr MTE

(Maximum hourly ink use) = 2.0 gallons/hour (same for both inks)

(Maximum hours of operation) = (0.60) x (24 hr/day) x (365 days/yr)
= 5256 hrs/yr

(2.0 gals/hr) x (0.507 lbs/gal) x (5256 hrs/yr) x (1 ton/2000 lbs) = **2.66 tons MIBK/yr MTE**

Method 2 for determining annual MTE.

Assume the absolute maximum use of ink S would never exceed 50 gallons per year. Using twice the normal use as a conservative estimate. Assume that the 50 gallons of ink S would be applied at the maximum ink use rate of 2.0 gallons per hour. Calculate the time it would take to apply ink S as follows:

(50 gal ink S/yr) x (1 hr/2.0 gal ink S applied) = 25 hr/yr used to apply ink S

Calculate the remaining time available apply ink N as follows:

(0.60) x (8760 hr/yr) - (25 hr/yr) = 5231 hrs/hr

Calculating the MTE for VOCs:

[(lbs VOC from ink S/yr) + (lbs VOC from ink N/yr)] x (1 ton/2000 lbs) = ton VOC/yr MTE

(lbs VOC from ink S/yr) = (max. hrly ink S use) x (VOC content ink S) x (hr/yr apply ink S)
= (2.0 gal/hr) x (2.8 lbs VOC/gal) x (25 hr/yr)
= 140 lbs VOC from ink S/yr

(lbs VOC from ink N/yr) = (max. hrly ink N use) x (VOC content ink N) x (hr/yr apply ink N)
= (20 gal/hr) x (2.0 lbs VOC/gal) x (5231 hr/yr)
= 20924 lbs VOC from ink N/yr

[(140 lbs VOC ink S/yr) + (20924 lbs VOC ink N/yr)] x (1 ton/2000 lbs) = **10.53 tons VOC/yr MTE**

Calculating the MTE for MIBK:

(lbs MIBK from ink S/yr) + (lbs MIBK from ink N/yr)] x (1 ton/2000 lbs) = ton MIBK/yr MTE

(lbs MIBK from ink S/yr) = (max. hrly ink S use) x (MIBK content ink S) x (hr/yr apply ink S)
= (2.0 gal/hr) x (2.8 lbs MIBK/gal) x (25 hr/yr)
= 140 lbs MIBK from ink S/yr

(lbs MIBK from ink N/yr) = (max. hrly ink N use) x (MIBK content ink N) x (hr/yr app. ink N)
= (2.0 gal/hr) x (0.5 lbs MIBK/gal) x (5231 hr/yr)
= 5231 lbs MIBK from ink N/yr

[(140 lbs MIBK ink S/yr) + (5231 lbs MIBK ink N/yr)] x (1 ton/2000 lbs) = **2.69 tons MIBK/yr MTE**

Maximum Theoretical Emissions vs. Potential to Emit

Maximum Theoretical Emissions	*Potential to Emit*
Control equipment is not taken into account.	Control equipment is taken into account if it is federally enforceable.
Physical design restrictions which limit the number of hours a source can operate are taken into account.	Any physical or operational limitation on the capacity of the source to emit air contaminants are taken into account if that limitation is federally enforceable.
Enforceable limitations on hours of operation and type or amount of material combusted, stored or processed are not taken into account.	Enforceable limitations on hours of operation and type or amount of material combusted, stored or processed are taken into account.

APPENDIX G

NONATTAINMENT AREAS IN THE STATE OF WISCONSIN

APPENDIX G
NONATTAINMENT AREAS IN THE STATE OF WISCONSIN

NONATTAINMENT AREAS BY POLLUTANT [1]

OZONE (O_3)

Door County	Marginal
Kenosha County	Severe
Kewaunee County	Moderate
Manitowoc County	Moderate
Milwaukee County	Severe
Ozaukee County	Severe
Racine County	Severe
Sheboygan County	Moderate
Walworth County	Marginal
Washington County	Severe
Waukesha County	Severe

SULFUR DIOXIDE (SO_2)

Portions of the following cities are designated as nonattainment areas for either the primary or the secondary SO_2 standard. For a description of the nonattainment area boundaries please refer to the following pages.

Rhinelander* (Oneida County)	Primary
Rib Mountain (Marathon County)	Secondary
Rothschild (Marathon County)	Primary
Weston (Marathon County)	Secondary

*The EPA has banned the construction of major sources of SO_2 in this nonattainment area.

TOTAL SUSPENDED PARTICULATE (TSP)

Portions of the following cities are designated as nonattainment areas for the secondary TSP standard. For a description of the nonattainment area boundaries please refer to the following pages.

Brokaw (Marathon County)
Green Bay (Brown County)
Kenosha (Kenosha County)

[1] Federal designation according to the 1990 Clean Air Act Amendments.

Madison (Dane County)
Manitowoc (Manitowoc County)
Marshfield (Wood County)
Milwaukee (Milwaukee County)
Oshkosh (Winnebago County)
Racine (Racine County)
Superior (2 areas) (Douglas County)
Waukesha (Waukesha County)

Rhinelander

Primary SO_2 Boundary

North: A line ENE from the intersection of Lynne and Maple Sts. to the west end of Abner St. Abner Street from west end to intersection of Abner St. and Thayer St.

East: South of Thayer St. from intersection of Abner and Thayer Sts. to intersection of Thayer and Anderson Sts. Anderson St. south from intersection of Anderson and Thayer Sts. to intersection of Anderson and Davenport Sts. Davenport St. west from intersection of Anderson and Davenport Sts. to west bank of Wisconsin River. West bank of Wisconsin River south from Davenport St. to Norway St.

South: Norway St. west from Wisconsin River extended to intersection of High View Parkway and Hillside Rd. High View Parkway west from intersection of High View Parkway and Hillside Road to intersection of High View Parkway and Davenport St.

West: Davenport St. ENE from intersection of Davenport St. and High View Parkway to intersection of Davenport and Maple Sts. Maple St. north from intersection of Davenport and Maple Sts. to intersection of Maple and Lynne Sts.

Source: Federal Register, October 9, 1985 (41142).

Rib Mountain

Secondary SO_2 Area

The NW ¼ of Section 23.
The SW ¼ of Section 23.
The NW ¼ of Section 25.

Source: Federal Register, October 9, 1985 (41142).

Rothschild

Primary SO_2 Boundary

North: State Highway 29 from east bank of Wisconsin River east to Volkman St.

East: Volkman St. from State Highway 29 south to Lemke Ave.

South: Lemke Ave. from Volkman St. west to Becher Ave., Becher Ave. from Lemke Ave. west to Francis St. Weston Ave. from Frances St. extended east bank of Wisconsin River.

West: East bank of Wisconsin River, Weston Ave. extended north to State Highway 29.

Source: Federal Register, October 9, 1985 (41142).

Weston
Secondary SO_2 Boundary

North: State Highway 29 from Volkman St. north to Jelinck Ave. east to Alderson St.

East: Alderson St. from Jelinck Ave. south to Weston Ave.

South: Weston Ave. from Alderson St. west to Volkman St.

West: Volkman St. from Weston Ave. north to State Highway 29.

Source: Federal Register, October 9, 1985 (41142).

Brokaw
Secondary TSP Area

Corporate limits of the city of Brokaw.

Green Bay
Secondary TSP Boundary

North: Green Bay

West: Corner west Mason St. and Ashland Ave. north to Mather St., west to Crocker St., north on Crocker St. to Bylsby St., then to Green Bay.

South: Corner west Mason St. and Ashland Ave. east along west Mason St. to Irwin Ave.

East: Corner west Mason St. and Irwin Ave., north along Irwin Ave. to Green Bay.

Source: CFR 81.350, 1985

Kenosha
Secondary TSP Boundary

North: 52nd St. east from 39th Ave. to Lake Michigan
West: 39th Ave. south from 52nd St. to 67th St.
South: 67th St. from 39th Ave. to Lake Michigan
East: Lake Michigan

Source: CFR 81.350, 1985

Madison
Secondary TSP Boundary

North: Corner of Schlimgen Ave. and Packers Ave. west to Lakewood Blvd.

Northwest: Corner of Lakewood Blvd. and Del Mar Dr. south to Lake Mendota, continue along eastern shoreline of Lake Mendota to Charter St.

West: Charter St. north from Vilas St. to Lake Mendota

Southeast: Vilas St. east from Charter St. to West Washington Ave. continue southeast to Lake Monona, continue along west shoreline of Lake Monona northeast to Starkweather Creek.

North/northeast: Western branch of Starkweather Creek, northeast to Fair Oaks Ave., then north along Bryen St. to Milwaukee St., continue west to Oak St., then north to Aberg Ave., continue northwest to Packers Ave., then north to Schlimgen Ave.

Source: CFR 81.350, 1985

Manitowoc
Secondary TSP Boundary

North: East from Manitowoc River to York Street to Lake Michigan.

West: 14th Street south from Wollmer St. to Hamilton St.

South: Hamilton St. east from 14th St. to Lake Michigan.

East: Lake Michigan.

Source: CFR 81.350, 1985

Marshfield
Secondary TSP Boundary

North: Chicago and Northwestern railroad tracks.

West: Western border of section 18 north to Chicago and Northwestern railroad tracks.

South: Southern border of section 17 and 18.

East: Eastern border of section 17, north to Chicago and Northwestern railroad tracks.

Source: CFR 81.350, 1985.

Milwaukee
Secondary TSP Boundary

North: Michigan Ave. from corner of 36th St. to Lake Michigan.

West: 35th St. south from Michigan Ave. to National Ave., east on National Ave. to 6th St., south on 6th St. to Becher St.

South: Becher St. east from 6th St. to Lake Michigan.

East: Lake Michigan.

Source: Federal Register, October 9, 1985 (41142).

Oshkosh
Secondary TSP Boundary

North: Corner Irving Ave. and Wisconsin Ave. east to Bowen St.

West: Corner Ohio St. and west 11th Ave. north to Route 26/44, continue northeast along Route 26/44 to intersection with Irving Ave.

South: Corner Ohio St. and West 11th Ave., east along West 11th Ave. to Lake Winnebago.

East: Corner Irving Ave., and Bowen St., south along Bowen St. to Lake Winnebago.

Source: CFR 81.350, 1985.

Racine
Secondary TSP Boundary

North: Douglas Ave., north from Marquette St., to Rapids Dr., northwest on Rapids Dr., to intersection with Forest St., west to intersection with west boundary.

East: Marquette St. north from Washington Ave., to Douglas Ave.

South: Washington Ave., west from Grange Ave., to Marquette St.

West: North from corner of Grange Ave. and Washington Ave. north to Freres Ave. north to intersection with north boundary.

Source: CFR 81.350, 1985.

Superior
Secondary TSP Boundaries

Area 1

North: Superior Bay.

West: Superior Bay and St. Louis Bay shoreline from intersection with Belknap St. to intersection with E. St. east.

South: East from intersection with Belknap St. and Minnesota/Wisconsin border to Oaks Ave. south on Oaks Ave. from Belknap St. and 19th St. east on 19th St. from Oaks Ave. to Hill Ave. north on Hill Ave. to E. St. east, northeast on E. St. east to Minnesota/Wisconsin border.

East: Superior Bay.

Area 2

North: Corner East 8th St. and 37th St., north along 37th St. to Superior Bay.

West: Corner East 8th St. and 37th St., east along East 8th St. to intersection with last set of railroad tracks.

South: Intersection of last set of railroad tracks north to Allouez Bay.

East: Allouez Bay and Superior Bay North from point where south boundary intersects to intersection of 37th Ave. and shoreline.

Source: CFR 81.350, 1985.

Waukesha
Secondary TSP Boundary

North: Moreland Blvd. east from Frame Park Dr. to White Rock Ave., south on White Rock Ave. to Eales Ave. to Cleveland Ave.

East: Cleveland Ave. from Eales Ave. to Perkins Ave.

South: East Main St. from White Rock Ave. to the Strand, north on the Strand to Perkins Ave., east on Perkins Ave. from the Strand to Cleveland Ave.

West: White Rock Ave. from East Main St. to Frame Park Dr., Frame Park Dr. from Perkins Ave. to Moreland Blvd.

Source: CFR 81.350, 1985.

APPENDIX H

FILING DATES FOR EXISTING SOURCE OPERATION PERMIT APPLICATIONS

APPENDIX H
FILING DATES FOR EXISTING SOURCE OPERATION PERMIT APPLICATIONS

County of location		Application filing date for non-part 70 sources
Adams		August 1, 1997
Ashland		August 1, 1997
Barron		May 1, 1998
Bayfield		August 1, 1998
Brown		July 1, 1998
Buffalo		December 1, 1997
Burnett		February 1, 1998
Calumet		July 1, 1997
Chippewa		August 1, 1998
Clark		May 1, 1998
Columbia		July 1, 1997
Crawford		July 1, 1997
Dane		November 1, 1998
Dodge		July 1, 1998
Door		November 1, 1997
Douglas		August 1, 1998
Dunn		October 1, 1997
Eau Claire		February 1, 1998
Florence		October 1, 1997
Fond du Lac		November 1, 1997
Forest		August 1, 1997
Grant		October 1, 1997
Green Lake		July 1, 1998

County of location		Application filing date for non-part 70 sources
Green		April 1, 1998
Iowa		March 1, 1998
Iron		February 1, 1998
Jackson		May 1, 1998
Jefferson		January 1, 1998
Juneau		August 1, 1997
Kenosha		March 1, 1998
Kewaunee		November 1, 1997
La Crosse		November 1, 1998
Lafayette		March 1, 1998
Langlade		August 1, 1997
Lincoln		October 1, 1997
Manitowoc		April 1, 1998
Marathon		July 1, 1998
Marinette		October 1, 1997
Marquette		July 1, 1998
Menominee		September 1, 1997
Milwaukee, south of Wisconsin Avenue		June 1, 1998
Milwaukee, north of Wisconsin Avenue		September 1, 1998
Monroe		May 1, 1998
Oconto		September 1, 1997
Oneida		July 1, 1997
Outagamie		January 1, 1998
Ozaukee		September 1, 1997
Pepin		February 1, 1998

County of location		Application filing date for non-part 70 sources
Pierce		August 1, 1997
Polk		May 1, 1998
Portage		January 1, 1998
Price		July 1, 1997
Racine		March 1, 1998
Richland		October 1, 1997
Rock		April 1, 1998
Rusk		February 1, 1998
Sauk		August 1, 1997
Sawyer		February 1, 1998
Shawano		August 1, 1997
Sheboygan		December 1, 1997
St Croix		October 1, 1997
Taylor		February 1, 1998
Trempealeau		December 1, 1997
Vernon		February 1, 1998
Vilas		July 1, 1997
Walworth		July 1, 1997
Washburn		February 1, 1998
Washington		August 1, 1997
Waukesha		December 1, 1998
Waupaca		November 1, 1997
Waushara		November 1, 1997
Winnebago		October 1, 1998
Wood		April 1, 1998
Portable sources located anywhere		December 1, 1998

County of location		Application filing date for non-part 70 sources
in Wisconsin		

* Note that NESHAP/MACT sources may have submittal dates which are dependent on the rule which implements the requirements of the standard. Consult Chapters NR 407, 446-448, and 468, Wis. Adm. Code. for these instances.

APPENDIX I

SUSPECTED AND CONFIRMED HUMAN CARCINOGENS

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SUSPECTED AND CONFIRMED HUMAN CARCINOGENS

50-00-0	Formaldehyde	30005000060
50-32-8	Benzo(a)pyrene	30005032863
56-23-5	Carbon tetrachloride	30005623560
57-14-7	1,1-Dimethylhydrazine	30005714760
57-57-8	beta-Propiolactone	30005757860
57-74-9	Chlordane	20005774960
58-89-9*	Lindane and other hexachlorocyclohexane isomers	30005889960
60-34-4	Methyl hydrazine	10006034460
60-57-1	Dieldrin	20006057100
61-82-5	Amitrole	20006182500
62-53-3	Aniline	10006253360
62-75-9	N-Nitrosodimethylamine	30006275969
67-66-3	Chloroform	30006766360
67-72-1	Hexachloroethane	00006772160
71-43-2	Benzene	30007143260
74-83-9	Methyl bromide	20007483960
74-87-3	Methyl chloride	10007487360
74-88-4	Methyl iodide	30007488460
75-01-4	Vinyl chloride	30007501460
75-07-0	Acetaldehyde	10007507060
75-09-2	Methylene chloride	10007509290
75-21-8	Ethylene oxide	30007521860
75-35-4	Vinylidene chloride	40007535460
75-55-8	Propylenimine	30007555860
75-56-9	Propylene oxide	30007556960
76-44-8	Heptachlor	20007644860
77-78-1	Dimethyl sulfate	30007778160
78-87-5	Propylene dichloride	40007887560
79-00-5	1,1,2-Trichloroethane	10007900560
79-01-6	Trichloroethylene	10007901660
79-06-1	Acrylamide	10007906160
79-34-5	1,1,2,2-Tetrachloroethane	10007934560
79-44-7	Dimethyl carbamoyl chloride	30007944760
79-46-9	2-Nitropropane	30007946960
87-68-3	Hexachlorobutadiene	20008768360
90-04-0*	o-Anisidine and o-anisidine hydrochloride	30009004062
91-59-8	2-Naphthylamine	30009159800
91-94-1	3,3'-Dichlorobenzidine	30009194160
92-67-1	4-Aminobiphenyl	30009267160
92-87-5	Benzidine	30009287560
92-93-3	4-Nitrobiphenyl	00009293360
95-53-4	o-Toluidine	30009553460
100-42-5	Styrene, monomer	10010042560
100-63-0	Phenylhydrazine	10010063000
101-14-4	4,4'-Methylene bis(2-chloroaniline) (MOCA)	30010114460
101-77-9*	4,4'-Methylenedianiline (and dihydrochloride)	30010177960

106-87-6	Vinyl cyclohexene dioxide	10010687600
106-89-8	Epichlorohydrin	30010689860
106-93-4	1,2-Dibromoethane (EDB)	30010693460
106-99-0	1,3-Butadiene	10010699060
107-05-1	Allyl chloride	10010705160
107-06-2	1,2-Dichloroethane (EDC)	30010706260
107-13-1	Acrylonitrile	30010713160
107-30-2	Chloromethyl methyl ether (CMME)	30010730260
117-81-7	Di(2-ethylhexyl) phthalate (DEHP)	30011781760
119-93-7	3,3'-Dimethylbenzidine (o-Tolidine)	30011993760
122-60-1	Phenyl glycidyl ether (PGE)	40012260100
123-91-1	1,4-Dioxane	30012391160
126-99-8	beta-Chloroprene	40012699860
127-18-4	Perchloroethylene	10012718490
140-88-5	Ethyl acrylate	10014088560
151-56-4	Ethylenimine	40015156460
218-01-9	Benzo(a)phenanthrene	00021801960
302-01-2*	Hydrazine and hydrazine sulfate	30030201260
309-00-2	Aldrin	20030900200
334-88-3	Diazomethane	40033488360
542-75-6	Dichloropropene	20054275660
542-88-1	Bis(chloromethyl) ether (BCME) and technical grade	30054288160
584-84-9	Toluene-2,4-diisocyanate (TDI)	10058484960
593-60-2	Vinyl bromide	00059360260
680-31-9	Hexamethyl phosphoramide	30068031960
1120-71-4	1,3-Propane sultone	30112071460
1300-73-8	Xylidine, mixed isomers	40130073800
1332-21-4*	Asbestos, all forms	30133221460
1333-86-4	Carbon black	40133386400
2238-07-5	Diglycidyl ether (DGE)	10223807500
7439-92-1*	Lead compounds	00743992160
7440-02-0*	Nickel compounds other than nickel subsulfide, as Ni	30744002060
7440-38-2*	Arsenic and inorganic compounds, as As	30744038260
7440-41-7*	Beryllium and beryllium compounds, as Be	30744041760
7440-43-9*	Cadmium and cadmium compounds, as Cd	30744043960
7440-47-3*	Chromium (VI) compounds, as Cr, water insoluble	30744047362
7440-48-4	Cobalt, as Co, metal, dust	40744048460
8001-35-2	Chlorinated camphene	20800135260
12035-72-2	Nickel subsulfide	31203572200
14977-61-8	Chromyl chloride, as Cr	31497761800
25321-14-6*	Dinitrotoluene	42532114660
29191-52-4	Anisidine	32919152400

APPENDIX J

POTENTIAL TO EMIT

APPENDIX J
POTENTIAL TO EMIT

Potential to emit is used to determine if you are a *major source*. *Potential to emit* means the maximum capacity of an emissions unit, operation or activity to emit any air contaminant under its physical and operational design. Any physical or operational limitation on the capacity of an emissions unit, operation or activity to emit an air contaminant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is *federally enforceable*. Generally a physical or operation limitation is federally enforceable if it is a requirement under the Clean Air Act OR it is a voluntary restriction contained in a federally enforceable permit condition and it is enforceable as a practical matter. . Wisconsin's new source permits issued with US EPA approval contain federally enforceable conditions. *Please note that permits issued under Wisconsin's mandatory operation permit program are not federally enforceable.*

Example 1: XYZ Company operates a boiler to provide process steam at their plant.

Emissions Unit: ..... A 90 million BTU per hour spreader stoker boiler
Maximum Rated Capacity: ..... 90 million BTU per hour
Fuel: .... Bituminous Coal
Heating Value: 21 million BTU per ton
Maximum Sulfur Content: ..... 1.0% (by weight)
Control Device: ..... Baghouse with a particulate matter control efficiency of 99.5%
Installation Date: 1988

XYZ Company was issued a new source permit in 1988 which limited their particulate matter emissions to 0.15 pounds per million BTU heat input (per s. NR 415.06(2)(a), Wis. Adm. Code). Because this limitation is included in a federally enforceable new source permit XYZ Company calculated their PTE for particulate matter as follows:

(0.15 lbs/MMBTU) x (90.0 MMBTU/hr) = **13.5** lbs particulate matter per hour

To calculate the annual PTE of particulate matter for this boiler, XYZ Company assumes the boiler is fired at maximum capacity at all times because the physical design of the boiler does not preclude the number of hours the boiler can operate and that there are no restrictions on hours of operation or on the type or amount of material combusted in their permit. Here are their calculations:

(**13.5** lbs/hr) x (24 hrs/day) x (365 days/year) x (1 ton/2000 lbs) = **59.1** tons particulate matter/yr

Example 2: JD Paving Company operates a portable 220 ton per hour hot mix asphalt plant which was constructed in 1987. Because this plant is subject to the New Source Performance Standard (NSPS) for Asphalt concrete plants contained in the Clean Air Act they can take the particulate matter limitation from the NSPS into account when they calculate their PTE. The NSPS limitation of not more than 0.039 grains per dry standard cubic feet of exhaust gas is also included in s. NR 440.25, Wis. Adm. Code. The maximum exhaust gas rate of the plant is 20,000 dry standard cubic feet per minute. JD Paving calculates their hourly PTE as follows:

(0.039 gr/dsgf) x (1 lb/7000 gr) x (20,000 dscf/min) x (60 min/hr) = **6.7** lbs particulate matter/hr

JD Paving has a new source permit for this asphalt plant which limits them to operating not more than 6600 hours per year. The permit requires that they keep operating hour records to demonstrate compliance with this limitation. The calculate their annual PTE of particulate matter as follows:

(**6.7** lbs/hr) x (6600 hr/year) x (1 ton/2000 lbs) = **22.1** tons of particulate matter per year.

Example 3: Widgettes, Inc. paints miscellaneous metal parts. They installed their new facility in Dodge County in 1990 and received a new source permit at that time. They use solvent based air dried paints which do not contain any water. They are subject to the RACT requirements of 3.5 pounds per gallon coating, excluding water, delivered to a coating applicator. They operate 4 paint guns in their painting operations which each spray a maximum of 4.25 gallons per hour. Widgettes, Inc. calculates their hourly VOC PTE as follows:

(4 guns) x (4.25 gal/hr) x (3.5 lbs/gal) = **59.5** lbs VOC/hour

To avoid Prevention of Significant Deterioration (PSD) requirements, Widgettes, Inc. took a voluntary restriction in their permit to keep their VOC emission less than 250 tons per year. The restriction limited them to using not more than 11,800 gallons of paint per month. Their permit required that they keep monthly paint usage records to demonstrate compliance with this limit. Additionally, they were required to keep daily records of the VOC content, density and the weight percent solvent, solids, and water of each paint used. Widgettes, Inc. calculates their annual VOC PTE as follows:

(11,800 gal/mo) x (3.5 lbs/gal) x (12 mo/yr) x (1 ton/2000 lbs) = **247.8** tons VOC/year

MAXIMUM THEORETICAL EMISSIONS vs. POTENTIAL TO EMIT

Maximum Theoretical Emissions	*Potential to Emit*
Control equipment is *not* taken into account.	Control equipment is taken into account if it is federally enforceable.
Physical design restrictions which limit the number of hours a source can operate are taken	Any physical or operational limitation on the capacity of the source to emit air contaminants are taken into account if that limitation is

into account.	federally enforceable.
Enforceable limitations on hours of operation and type or amount of material combusted, stored or processed are *not* taken into account.	Enforceable limitations on hours of operation and type or amount of material combusted, stored or processed are taken into account.

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